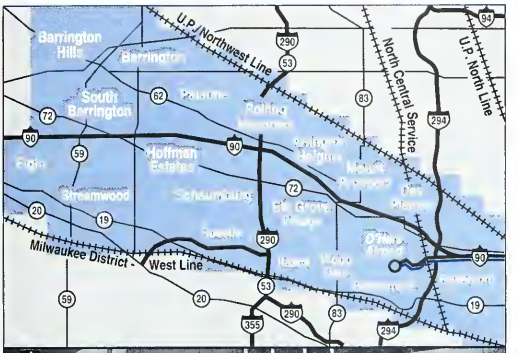
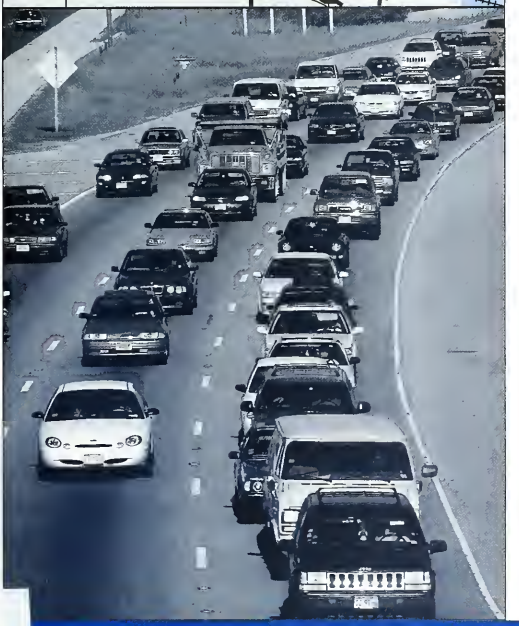
S P E C I A L R E P O R T

Market Analysis

Northwest Corridor Transit Feasibility Study





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Northwest Corridor Transit Feasibility Study

Prepared by the
System Planning Division
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181 West Madison Street
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August 1998

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Executive Summary

The Northwest Corridor Transit Feasibility Study is a comprehensive examination of the transit and transportation needs of the Northwest Corridor located in the six-county Northeastern Illinois region. The corridor is centered on the I-90 Northwest Tollway, and is bounded by Harlem Avenue on the east, the Kane/Cook County line on the west, the Metra Union Pacific-Northwest commuter rail line on the north and the Milwaukee District-West commuter rail line on the south. This study, conducted jointly by the Regional Transportation Authority (RTA), the Illinois State Toll Highway Authority (ISTHA), Elk Grove Village, Hoffman Estates, Rolling Meadows, Rosemont, and Schaumburg will identify and evaluate a range of transportation improvement options, resulting in the recommendation of a small set of feasible, cost-effective transportation improvements.

As the first major document of the Northwest Corridor Transit Feasibility Study, this market analysis evaluates transportation markets and facilities, identifies mobility problems, assesses the extent of these problems, and lays the groundwork for the generation of conceptual alternatives. This analysis takes the basic approach of assessing transportation supply and demand. Transportation problems result from inadequate supply in a given market, geographic area, direction or time of day. These supply shortfalls are symptomized by congestion and longer travel times. The conflict between these symptoms and goals for the corridor's transportation system provide the basis for defining transportation problems.

A major distinguishing characteristic of the northwest corridor is its abundance of jobs. It has as many jobs, totaling some 537,000 in 1995, as the total population of the District of Columbia. Even more significant is that the job total greatly exceeds resident workers in the corridor. In fact some 300,000 workers travel to the corridor to work. Most of the workers coming to the corridor are from Chicago, Suburban Cook County, and DuPage County. The importation of such a large a number of workers increases demand for and use of transportation capacity. This imbalance will increase as employment growth is expected to far outpace population increases through 2020.

The existing arterial and expressway system in the corridor is straining to meet travel demands. Although the roadway capacity in the corridor in many cases is exceeded by demand, the automobile is the primary mode of transportation in the corridor. Transit offers limited alternatives to the automobile with most service geared to peak period work trips. Transit's recent record in the corridor is mixed. It carries more than 50 percent of the work trips from the corridor to the Chicago Central Business District, but 10 percent or less of work trips to the corridor. Total transit ridership has increased west of O'Hare Airport since the mid-1980s. The characteristics of transit users and their reasons for using transit vary. Those traveling to the corridor are generally captive riders using Pace and/or CTA, particularly those headed west of O'Hare Airport. Corridor residents using transit are generally choice riders who use Metra.

Several travel markets play key roles in the corridor's transportation system. Work trips dominate travel both during the morning and evening peaks, with those traveling in the corridor experiencing longer travel times than their regional counterparts. Trips to and from O'Hare International Airport are also an important part of travel in the corridor.

The northwest corridor's transportation system cannot comfortably service current travel demand. That inability is caused to a significant degree by the large number of workers entering and leaving the corridor in automobiles during the morning and afternoon peaks. Consequences of the system's deficiencies include congestion, delay and increased travel times. Meanwhile, transit carries a relatively low market share, particularly in the western two-thirds of the corridor. All indications are that underlying trends will continue, leading to less mobility in the corridor. Transportation deficiencies have constrained travel choices, particularly with regard to mode choice, route choice, and time of day travel choice.

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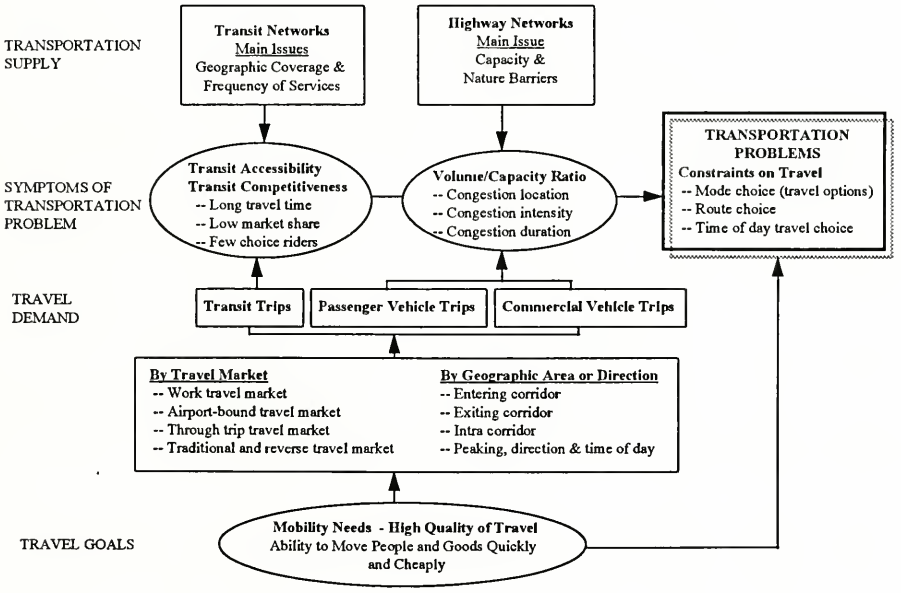
1. Summary of Findings

The purpose of this market analysis is to identify transportation problems in the northwest corridor. Figure 1-1 displays the framework followed to determine transportation problems in the corridor. The analysis takes a basic approach of assessing the relationship between transportation supply and demand. Transportation supply includes the roadway network and capacity together with available transit services. For transit supply, the main issues include geographic coverage and service levels. For highway systems, capacity is the central focus. Transportation demand includes volumes of traffic, transit trips and travel markets, e.g.: work travel, airport-bound travel, and through trip travel. Travel demand is segmented by geographic areas, direction, and time of day. Transportation problems result from mismatches between transportation supply and demand. These mismatches are symptomized by congestion and longer travel times. The conflict between these symptoms and goals for the transportation system in the corridor provide the basis for defining transportation problems.

Figure 1-1: Northwest Corridor Market Analysis Framework



Source: RTA System Planning Division

1.1 Transportation Problems

1.1.1 Constraints on Mode Choice

Travel options within the corridor, particularly west of O'Hare airport, are limited. Auto travel in most cases is the only attractive choice for persons traveling to the west of O'Hare Airport. Although transit services are provided in the corridor to all identified activity centers, service levels and travel times currently limit the attractiveness of transit as a choice. Few transit services are available outside of the peak morning and evening hours. In addition, existing transit services west of O'Hare Airport must rely on congested roadways as a means of travel.

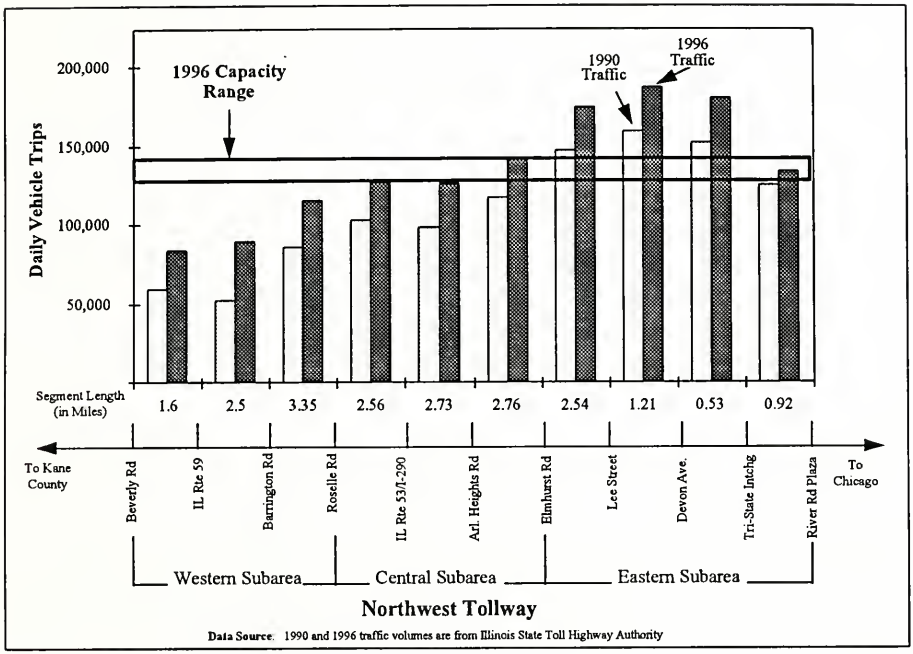
The demographic and tripmaking profiles of transit riders traveling to the corridor indicate the limited attractiveness of transit as a travel option. Transit users traveling west of O'Hare Airport are overwhelmingly captive riders. Despite severe levels of congestion in the corridor and substantial travel times, those with the means are continuing to travel by automobile. The exception is a small number of Metra riders traveling to the corridor. The number of transfers required for travel by transit and consequently high travel times make transit a much less competitive travel option for most travelers. For those who do choose to travel by bus to the corridor, they must also rely on the congested expressway and arterial system. As a result, bus travel has a travel time disadvantage relative to the automobile within the corridor. Together, the requirement for multiple transfers, uncompetitive travel times, and the perception that transit does not offer a reasonable travel choice given that it relies on congested roadways limit its competitiveness west of O'Hare Airport. In contrast, transit is an attractive option for travel from the corridor to the Chicago central business district where it captures more than 50% of work trip travel.

1.1.2 Constraints on Route Choice

Travelers throughout the corridor have little choice but to tolerate congestion and endure poor levels of service. The arterial and expressway system in the study area is strained. Insufficient capacity is more widespread east of Roselle Road on both the expressway and arterial system, but is also found on many of the major arterials to the west of Roselle Road. Despite capacity constraints on the roadway system in the corridor, traffic volumes are increasing.

Figure 1-2 displays daily Northwest Tollway traffic and capacity. The capacity problem is most severe on the tollway in the eastern two-thirds of the corridor. Currently, volumes are near to or above capacity to the east of Roselle Road. East of Elmhurst Road, congestion is particularly acute with daily volumes exceeding capacity by up to 30 percent. As traffic volumes grow, operating conditions on the Northwest Tollway will deteriorate. Severe congestion will likely spread west to Roselle Road.

Figure 1-2: Comparison of Northwest Tollway Daily Capacity and Traffic[1]

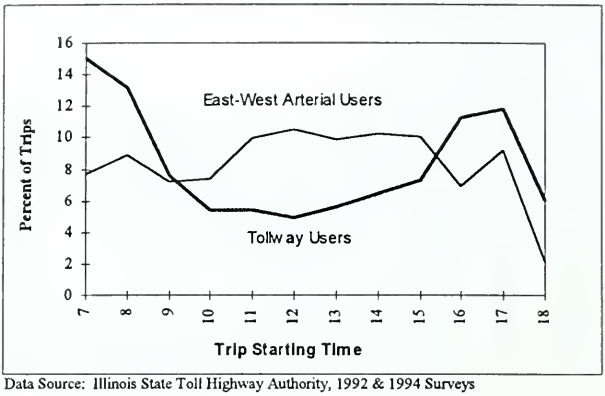


The major east-west arterials also are experiencing capacity problems. The corridor arterials not only carry peak hour commuter trips, but also serve a significant amount of midday and afternoon traffic as shown in Figure 1-3. Although the arterial capacity problem is less intense than that of the Northwest Tollway, with the volume/capacity ratio ranging from 0.9 to 1.1, arterials are carrying high volumes for longer periods during the day. In addition to during peak hours, the arterials also experience midday and afternoon volumes close to capacity.

Limited route options particularly affect travel between the city of Chicago and the northwest corridor. Major barriers, such as O'Hare Airport and Busse Woods forest preserve confine east-west travel options to a small number of routes. The result is a higher demand for travel on those routes and few alternatives to roadways with poor service levels. O'Hare and Busse Woods also limit the coverage of local streets and minor arterials which often provide alternatives to congested roadways, particularly for shorter trips. Again, the result is increased demand on a few major roadways.

[1] The study area is divided into three subareas: 1) East of Elmhurst Road/York Road 2) Elmhurst Road/York Road to Roselle Road and 3) West of Roselle Road. Additional detail provided in Chapter 2.

Figure 1-3: Tollway and Non-Tollway Weekday Users

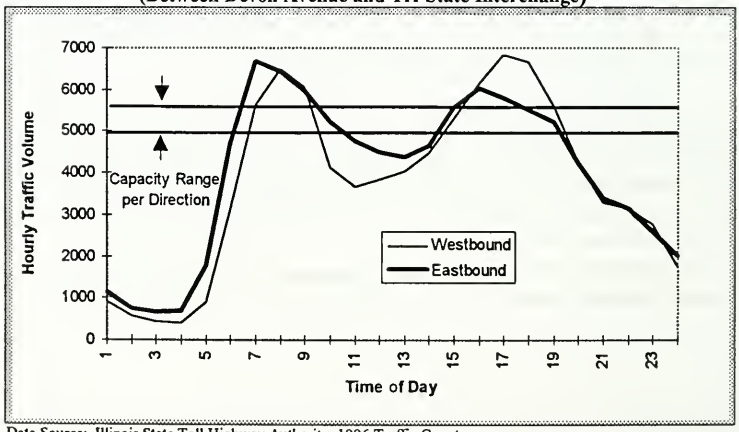


Data Source: Illinois State Toll Highway Authority, 1992 & 1994 Surveys

1.1.3 Constraints on Time of Day of Travel

Insufficient transportation supply is available during the extended peak hours. As indicated in Figure 1-4, traffic on the Northwest Tollway in the eastern subarea exceeds capacity for nine hours during the day; from 6 to 10 a.m. and from 2:30 to 7:30 p.m. As a result, users of the tollway experience significant delay during these periods. The hourly traffic variation also indicates that this capacity constraint is in both directions in the eastern subarea. Furthermore, the overwhelming trip purpose during peak hours is work related.

Figure 1-4: Northwest Tollway Hourly Traffic Volume
(Between Devon Avenue and Tri-State Interchange)



Data Source: Illinois State Toll Highway Authority, 1996 Traffic Counts
Note: Capacity ranges correspond to 2,000-2,300 passenger cars per hour per lane (pcphpl) under the ideal operating conditions. Using CATS 18% reduction factors, the range of 1650-1885 pcphpl is derived (see Page 4-3 footnote)

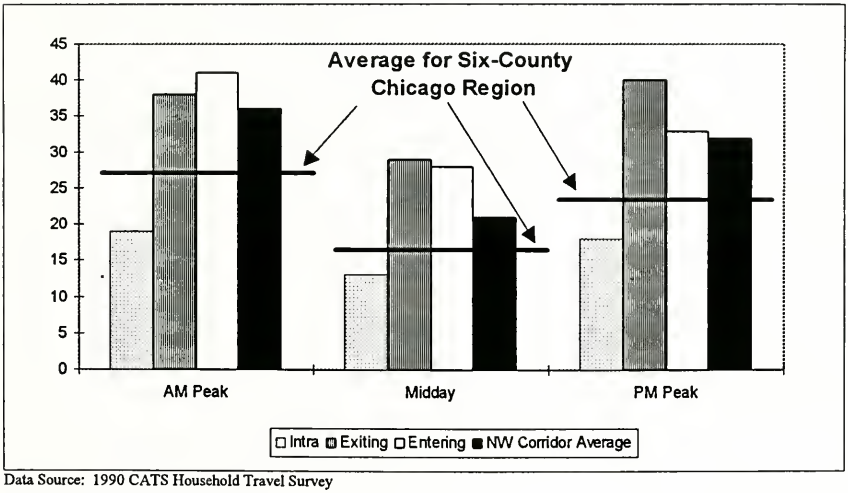
Work trips dominate the traffic volumes during peak hours and commuters generally have limited control over the time of travel. Given the severity and duration of the congestion period, few employees will have the ability to shift travel times to periods outside of these congested times. The peak hours now number four hours in the morning and five hours in the evening. While the corridor arterial system may not experience as much congestion as the tollway, traffic volumes are high for much of the day, as was discussed previously and shown in Figure 1-3.

Airport bound trips also add strain to the corridor roadway system. More than 17 percent of total airport trips originate from the northwest corridor. Analysis of time of day of travel shows much higher traffic in the afternoon, evening, and late night, adding to congestion during the extended evening peak hours.

1.1.4 Limited Mobility in the Corridor

Given the congestion on both the tollway and arterials, travelers have few alternatives to the congested roadway system. Trips to the corridor will continue to experience extended travel times. These times can be attributed to limited mode choices available, the number of corridor workers traveling west of the airport and the continued growth in the number of workers traveling to the corridor. As depicted in Figure 1-5, in 1990 the average travel times for persons traveling to the corridor for employment exceeded the average for the six-county Chicago region by more than 50 percent. Projections by NIPC indicate that employment growth in the corridor will substantially exceed population growth through 2020. As a result,

Figure 1-5: Comparison of Average Travel Time



Data Source: 1990 CATS Household Travel Survey

the number of persons traveling to the corridor for work will continue to increase. However, increasing commute times and limited mode choices may reduce the mobility of those traveling to the corridor.

1.1.5 Summary

In summary, this analysis reveals that corridor transportation demand significantly exceeds supply. This deficiency has led to fewer travel choices, particularly with regard to **mode choice**, **route choice**, and **time of day travel choice**. Though the capacity of the expressway and arterial systems are constrained, if not exceeded by demand, the automobile serves as the primary mode of transportation in the corridor. As a result, individual travelers experience constraints on their route and when they travel. Long term prospects indicate that the existence of relatively few transit options will further limit mobility in the corridor. The corridor's transportation problems are defined based on an extensive analysis of its transportation system and travel patterns, as summarized in the next section.

1.2 Corridor Characteristics

1.2.1 Employment Concentration

A major distinguishing characteristic of the northwest corridor is its abundance of jobs. Its current job total is some 537,000. What is significant from a transportation standpoint is that the job total greatly exceeds the resident workers in the corridor. In fact some 300,000 workers travel to the corridor to work. This fact significantly increases demand for and use of transportation capacity. This imbalance will increase. NIPC forecasts corridor employment growth to far outpace population growth over the next 25 years. By 2020, the corridor is expected to add more than 250,000 jobs, but only 30,000 residents.

Employment is concentrated in the eastern two-thirds of the corridor. Population, meanwhile, is more evenly dispersed. Several major activity centers, each with an appreciable number of employees, have a significant effect on the corridor's transportation system:

- I-90/Cumberland Ave;
- Rosemont;
- O'Hare Airport;
- Elk Grove Village/Bensenville Industrial Areas;
- Rolling Meadows/Golf Road;
- Woodfield Regional Center; and
- Prairie Stone.

1.2.2 Auto Travel

Data provided by the Illinois State Toll Highway Authority (ISTHA), the Illinois Department of Transportation (IDOT) and the Chicago Area Transportation Study (CATS) indicates that the existing transportation system in the northwest corridor is failing to meet travel demands, particularly in the central and eastern subareas. The corridor's expressway system and most of its major arterials carry daily traffic volumes that exceed the capacity of the roadways, particularly east of Roselle Road. Despite capacity constraints on the roadway system, traffic volumes continue to increase. The continued growth in volumes is resulting in a deterioration of conditions on both the expressway and arterial systems. Detail on the corridor's expressway and arterial system is contained in Chapter 4.

Auto travel is by far the dominant mode choice in the corridor. According to the 1990 Chicago Area Transportation Study Household Travel Survey (CATS HHTS), on an average weekday, almost 2.3 million auto trips, 15 percent of the total for the six-county region, begin or end within the boundaries of the study area. Auto travel in the corridor peaks during the morning and evening with an evening peak that is longer in duration and more severe than the morning peak. Detail on auto travel in the corridor is contained in Chapter 5.

1.2.3 Transit's Role

Transit service in the corridor is limited, with most service geared to peak period work trips. Development is relatively dispersed which presents a challenge to the provision of transit services. Despite the limited service, boarding data provided by the region's service boards indicate that transit ridership has increased in the central and western subareas since the mid-1980s. Bus routes serving Elk Grove Village and Woodfield/Rolling Meadows have experienced the most substantial increases, in some cases doubling or tripling in ten years. Ridership on Metra's reverse commute service (those headed to the corridor in the morning) has increased from approximately 350 to just under 1,000 since 1985. Ridership at the O'Hare and Rosemont stations has also increased. However, in the same period, ridership has declined in the eastern subarea, particularly on CTA bus routes and at the two easternmost Blue Line stations in the corridor, Harlem and Cumberland. Transit boardings on an average weekday in the corridor total more than 21,000 on CTA rail and more than 23,000 on Metra. Detail on the corridor's transit system is contained in Chapter 7.

As discussed in Chapter 8, the characteristics of transit users vary within the corridor. According to 1996 Metra survey data, among those living in the corridor, persons who use Metra are generally choice riders. These transit users typically have high incomes and autos available for their trips. Most Metra users are traveling to work in downtown Chicago and walk to their final destination. People riding Metra outbound to the corridor have a demographic profile similar to CBD-bound Metra commuters.

By contrast, CTA survey data from 1994 shows that CTA rail users with destinations in the corridor by and large have lower incomes and lower rates of auto ownership than do their Metra counterparts. This difference is accentuated for those persons using both CTA rail and Pace to reach their final destinations in the central and western subareas. These transit users are generally captive riders who often transfer two or more times to reach their destinations in the corridor. They are traveling almost exclusively for work purposes.

As discussed in Chapter 9, journey-to-work data from the 1990 Census shows that transit carries only a small portion of the corridor's work trips. Metra carries most of the transit users living in the corridor, while CTA and Pace services carry most transit users headed to the corridor. The eastern subarea has the highest transit share within the corridor at 10 percent of work trips, both entering and leaving the subarea. Within the central subarea, the transit share is 6 percent of those traveling from the subarea and just 2 percent of those traveling to the subarea. Within the western subarea, transit carries just 4 percent among residents of the subarea and 1 percent of those traveling to the subarea.

Despite a relatively low overall market share in the corridor, transit carries a high proportion of work trips to and from select locations. Transit consistently carries more than 50 percent of work trips originating in each of the corridor's subareas headed to the Chicago CBD. Transit also carries a relatively high proportion of work trips made by Chicago residents to corridor job sites. This is particularly true among those persons headed to the eastern subarea, where the transit share is almost one-quarter of work trips coming from Chicago. By contrast, the transit share is low for work trips made entirely within the corridor where it captures just 1 to 3 percent of the total.

1.2.4 Work Trips

Work trips are predominant both during the morning and evening peaks, with those traveling in the corridor experiencing longer travel times than their regional counterparts. Traffic congestion, as well as longer distances, contribute to the corridor's relatively longer travel times. The portion of corridor work related travel significantly exceeds its regional equivalent. During the morning peak, almost 90 percent of corridor trips begin or end at a workplace, compared to 77 percent regionwide. Work related trips account for some 68 percent of the corridor's afternoon peak, compared to 52 percent for the region. The corridor's all-day work related percentage is 60, whereas the region's is only 44. As discussed in Chapter 6, Illinois State Toll Highway Authority (ISTHA) survey data collected in 1992 and 1994 also indicates that on some facilities, including the Northwest Tollway and selected arterials, more than 80 percent of trips conducted during the day are for work purposes. Travel into the corridor occurs more during the morning peak while travel out of the corridor occurs more during the evening peak. All of these data sources consistently indicate the significance of travel related to work in the corridor.

Work trip data from the 1990 Census indicates that travel patterns and mode choice for work trips vary substantially within the corridor by subarea. The corridor has strong connections to

both the city of Chicago and Suburban Cook County which together account for almost 40% of its workers. These locations also serve as an employment destination for almost 40% of resident workers in the corridor. However, this connection to Chicago and Suburban Cook declines in significance from east to west while the connection to DuPage County and the region's collar counties increases. Detail on work trip travel is contained in Chapter 9.

1.2.5 O'Hare

Trips to and from O'Hare International Airport are an important part of travel in the corridor. Based on data from a 1989 Landrum and Brown report and the O'Hare Intermodal Station Study Final Feasibility by CATS, of the approximately 120,000 estimated trips entering or exiting O'Hare Airport on a daily basis, 17 percent, or 20,400, have an origin or destination in the northwest corridor. Apart from airport employees, of whom 18 percent use CTA rail to access O'Hare, the auto accounts for the vast majority of such trips. Travel to and from O'Hare peaks in the evening. Detail on O'Hare Airport is contained in Chapter 9.

1.2.6 Through Trips

Through trips and commercial vehicles account for a small proportion of total traffic in the corridor. Estimates made using the 1990 CATS HHTS show that through trips account for 2 to 5 percent of total trips in the corridor, with the higher proportion in the western subarea. Data on commercial traffic gathered from ISTHA, the Illinois Department of Transportation and the Chicago Area Transportation Study show that commercial traffic accounts for 3 to 15 percent of total traffic, with the higher proportion in the western subarea. Detail on through trips and commercial traffic is contained in Chapter 9.

1.2.7 Summary

Overall, the northwest corridor's transportation system cannot service current travel demand. The system's inability to meet demand is largely due to the large number of workers entering and leaving the corridor in automobiles during morning and afternoon peaks. The results of the system's deficiencies are congestion, delay and increased travel times and all of their attendant externalities. Despite the high levels of congestion, transit use throughout the corridor is low and in the central and western subareas is negligible. What is worse, all indications are that the underlying conditions will continue on their present courses, leading to greater shortfalls. Transportation deficiencies have constrained travel choices in the corridor.

2. Market Analysis Purpose and Approach

2.1 Purpose

The market analysis for the Northwest Corridor Transit Feasibility Study is intended to provide insight into the existing transportation system and travel market in the northwest corridor. The goal of this analysis is to evaluate transportation markets and facilities, identify mobility problems, assess the extent of these problems, and lay the groundwork for the generation of conceptual alternatives to address the corridor's transportation problems. This analysis answers basic questions pertaining to who is traveling in the corridor, as well as when, why and how they are traveling. It evaluates whether the transportation system as it exists today is meeting their needs. The market analysis, together with stakeholder interviews and workshop results, are being used to develop a formal problem statement for the corridor.

2.2 Study Area and Data Sources

The northwest corridor study area resides in the Northeastern Illinois region which is composed of six counties: Cook, DuPage, Kane, Lake, McHenry and Will, and contains the City of Chicago. The northwest corridor itself is an area in the northwestern portion of Cook County and the northeastern corner of DuPage County, centered on the I-90/Northwest Tollway as shown in Exhibit 2-1. Its boundaries are Harlem Avenue on the east, the Kane/Cook county border on the west, the Union Pacific-Northwest rail line on the north and the Milwaukee District-West rail line on the south. The corridor is approximately 24 miles in length from east to west.

For the purposes of this study, the corridor is divided into three subareas to provide detail on variations land use, demographics, and travel patterns within the corridor. The subareas identified for this analysis are:

1) The Eastern Subarea (East of Elmhurst Road) – This subarea includes O'Hare Airport, Rosemont, Des Plaines, Park Ridge, and all areas of Chicago contained within the northwest corridor. It is the most urban of the three subareas.
2) The Central Subarea (Elmhurst Road to Roselle Road) – This subarea contains parts of Mt. Prospect, the Elk Grove Village/Bensenville industrial area, Rolling Meadows and roughly the eastern half of Schaumburg including Woodfield.
3) The Western Subarea (West of Roselle Road) – This subarea contains the western half of Schaumburg, most of Hoffman Estates, Prairie Stone, Barrington, South Barrington, Hanover Park and Inverness. This subarea is the least developed of the three.

The three subareas divide the northwest corridor into distinct districts which roughly correspond to changes in the nature and age of development within the corridor. The easternmost subarea is the most mature and densely developed. It also has the most

comprehensive transit coverage of the three. Development in the central subarea is more contemporary and has occurred generally at a lower density than the eastern subarea. The western subarea has the greatest potential for change among the three, given its coverage of undeveloped land. The division of the corridor into three subareas roughly corresponds to an equal division based on distance from east to west. Each of the three subareas have distinct travel patterns, transportation issues and deficiencies.

No primary data collection was performed for this market analysis. However, numerous data sources were made available by the agencies participating in the study. Comprehensive data sources include the 1990 U.S. Census Transportation Planning Package and the 1990 Chicago Area Transportation Study (CATS) Household Travel Survey. Land use, employment and population data were provided by the Northeastern Illinois Planning Commission (NIPC). Metra, CTA, and Pace furnished information on the transit system and its users. The Illinois State Toll Highway Authority provided all tollway related data. The Illinois Department of Transportation and the Chicago Area Transportation Study (CATS) served as the source for roadway capacity data and traffic volumes. Finally, data related to O'Hare Airport was taken from the 1989 Landrum and Brown study.

2.3 Approach and Outline

This travel market analysis takes the basic approach of examining the relationship between transportation supply and demand in the corridor based on existing data sources. Transportation supply includes the roadway network and capacity and available transit services. This analysis also extensively explores travel patterns in the corridor together with factors that drive transportation, including land use, population and employment, with the goal of determining gaps between the transportation supply and demand. Existing conditions in the corridor are the focus of the analysis, supplemented with some historical trends and a limited discussion of how anticipated changes will affect the existing pattern.

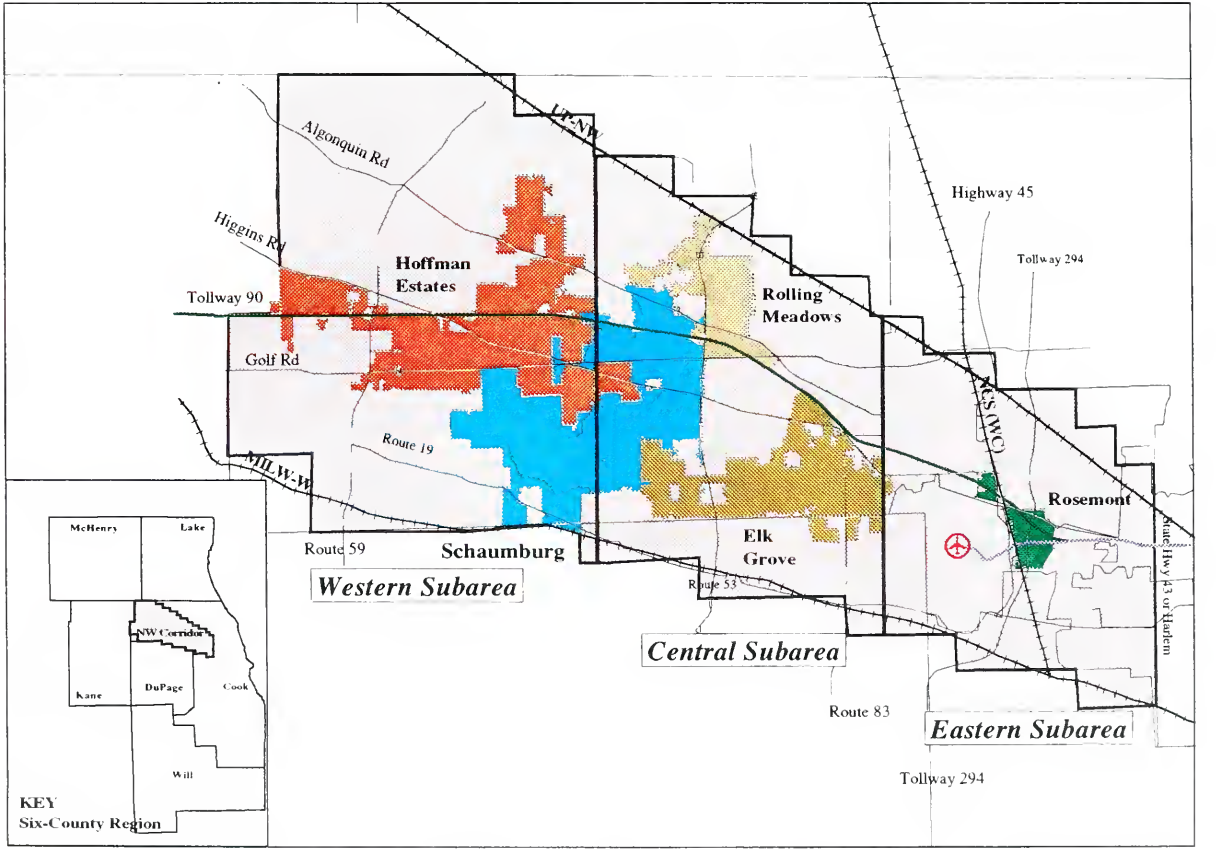
Chapter 3 evaluates the three key factors in the northwest corridor that drive transportation – land use, employment, and population. The land use section focuses on existing conditions in the corridor with the identification of major activity centers. The discussion of employment and population focuses on recent trends, future projections, and spatial analysis.

Chapter 4 assesses the highway and arterial systems in the northwest corridor. This section begins with a description of tollways, expressways and arterials in the corridor followed by detail on volumes by time of day and direction. It also provides a brief historical context on highway volumes. Finally, it summarizes capacity enhancements planned for the corridor's highway system.

Chapter 5 analyzes the general travel patterns of auto users in the corridor, focusing on trip purpose, trip distribution, time of day, and travel time in the corridor. The patterns of travel within, to, and from the corridor are also discussed.

Exhibit 2-1

Northwest Corridor Study Area



RTA System Planning Division, July 1998

Chapter 6 profiles the travel patterns among users of some of the major roadway facilities in the corridor, specifically the Northwest Tollway and several arterials west of O'Hare Airport.

Chapter 7 summarizes existing transit services in the corridor including Metra commuter rail, CTA rail and bus, and Pace suburban bus. Service levels and ridership are discussed in detail for each of the service boards.

Chapter 8 presents a profile of Metra, CTA rail, and Pace transit users in the corridor. This chapter specifically addresses the differences between traditional CBD bound commuters and reverse commuters using the corridor's transit services.

Chapter 9 details four key market segments in the northwest corridor: work trips, O'Hare Airport trips, through trips, and commercial trips.

3. Existing/Evolving Land Use, Employment and Population

This chapter provides general demographic and land use information for the northwest corridor. The first section of the chapter details land uses in the corridor and identifies major activity centers. The second section addresses employment in the corridor with detail on recent growth, total employment by sector, employment clusters, spatial orientation and a summary of projections for 2020. The third section discusses population with a focus on recent growth and household characteristics including age, number of workers per household, income and vehicle ownership. It also addresses the spatial layout of population and summarizes projections for 2020.

3.1 Land Use

3.1.1 General Land Use

Land use in the corridor varies from the more densely developed residential, commercial, and industrial areas in and around O'Hare airport to a lower density mix of residential, agricultural and commercial uses on the corridor's western edge. In general, the intensity of development is higher in the eastern two-thirds of the northwest corridor, with little land remaining undeveloped. The western third of the corridor contains multiple tracts of undeveloped land and several large forest preserves held in conservation. Land use data provided by the Northeastern Illinois Planning Commission (NIPC) designates uses under one of the following categories based on 1990 conditions (see Exhibit 3-1):

- Residential – includes single-family and multi-unit development;
- Manufacturing/Industrial – includes manufacturing, warehousing and distribution facilities;
- Commercial – includes retail, offices, hotels and entertainment facilities;
- Institutional – includes medical, educational, religious and government facilities;
- Transportation Facilities – includes intestate highways, tollways, airports, utilities, independent parking and communication facilities;
- Open Space/Conservation/Water – includes parks, recreational space and other land preserved for conservation; and
- Vacant/Agricultural/Wetlands – includes land with the potential for future development including agricultural land, vacant land and areas where development is underway.

Residential

As a general rule, the density of residential development declines from southeast to northwest. Residential development in the corridor is predominantly single-family. However, some multi-family development is found throughout the corridor, particularly in Schaumburg, Hoffman Estates, Rolling Meadows, Arlington Heights and areas east of O'Hare Airport. The

highest density residential development is found in the eastern subarea. Within the corridor, residential and commercial uses are generally separated. Residential development is common throughout the corridor, with the exception of the far northwestern part of the corridor where large tracts of undeveloped and conservation land limit its coverage.

Industrial/Manufacturing

Most of the industrial facilities in the corridor are concentrated in the eastern subarea of the northwest corridor in and around O'Hare Airport, particularly in Elk Grove Village and Bensenville. Other light industrial development is located in the central subarea of the corridor including the Motorola facility west of I-290 in Schaumburg. Industrial development in the corridor is consistently made up of light industry in buildings of one or two stories.

Commercial

Retail development is scattered throughout the corridor, primarily along major arterials. The nature of this development varies from small shopping centers to "big box" retailers. The most significant concentration of retail is found just to the west of I-290 along Golf Road. The corridor's largest regional malls, Woodfield Mall and One Schaumburg Place, are both located south of Golf Road, just to the west of I-290.

Office development is concentrated in several clusters including the I-90/Cumberland interchange, Rosemont, Woodfield in Schaumburg and Prairie Stone. Several corporate campuses dedicated to single employers are also located in the corridor including Ameritech in Hoffman Estates and the Motorola International Headquarters in Schaumburg. In addition, smaller, one to two story office buildings, are found throughout the corridor on some of the major arterials, including Algonquin Road, Golf Road and Higgins Road.

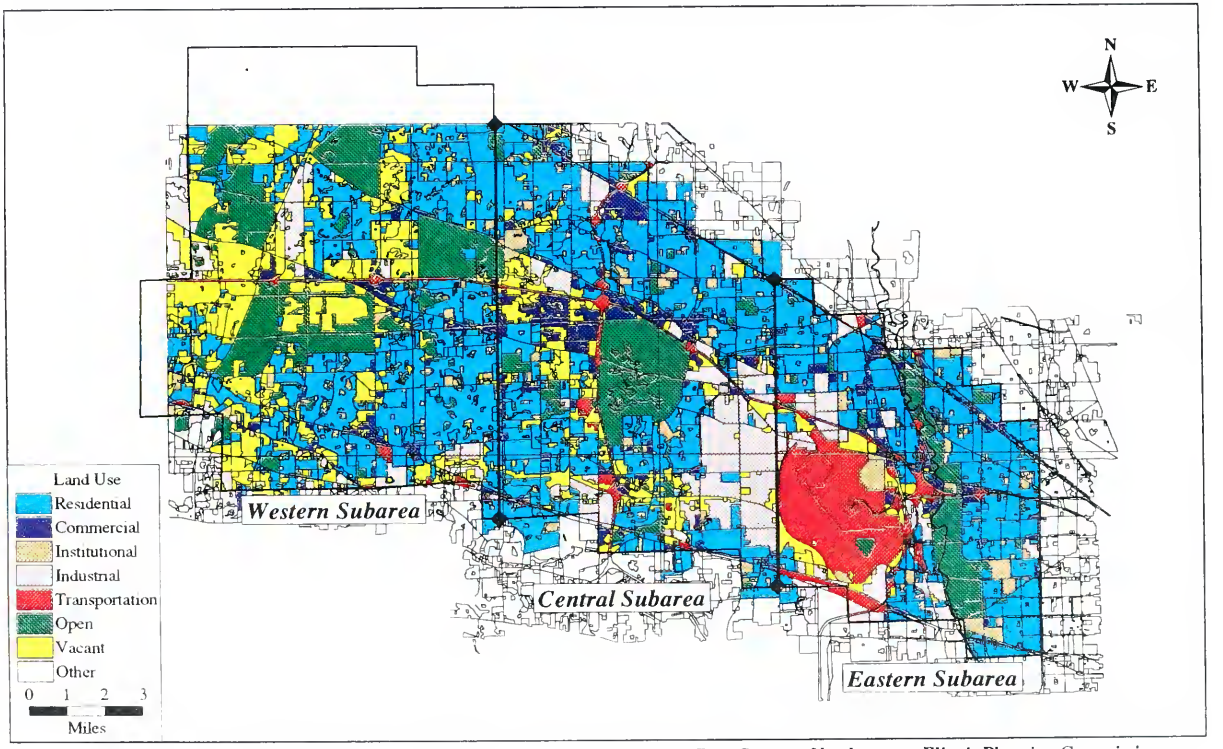
Other significant commercial development in the corridor includes Arlington International Race Track (currently closed to racing but host to other events), the Rosemont Exposition Center, the Rosemont Theater and several major hotels. The most significant concentration of hotels is found just to the east of O'Hare Airport in Rosemont. Smaller, low to mid-rise hotels are scattered throughout the corridor.

Institutional

Some of the more significant institutional uses in the corridor include schools, the Alexian Brothers Medical Center in Elk Grove Village, the Columbia Hoffman Estates Medical Center on Barrington Road, William Rainey Harper College on Algonquin Road in Palatine, the satellite campus of Northern Illinois University in Prairie Stone, the Roosevelt University site in Schaumburg and village administrative centers throughout the corridor.

Exhibit 3-1

1990 Land Use by Subarea



Data Source: Northeastern Illinois Planning Commission
RTA System Planning Division, May 1998

Open Space/Conservation

Several large tracts of land in the corridor are dedicated to recreation or open space. Notable areas of conservation include the Poplar Creek, Paul Douglas and Spring Creek Valley forest preserves adjacent to Hoffman Estates, the Crabtree Nature Center Forest Preserve to the east of Barrington, Busse Woods located in Elk Grove Village, Rolling Meadows and Schaumburg and conservation areas adjacent to the Des Plaines River. With the exception of Busse Woods and areas adjacent to the Des Plaines River, all of the large conservation tracts are clustered in the western subarea.

3.1.2 Land Use by Subarea

The mix of land use varies significantly within the corridor. Table 3-1 below summarizes major land uses by each subarea. The following section provides a brief description of land uses and major activity centers within each subarea.

Table 3-1: Land Use by Subarea

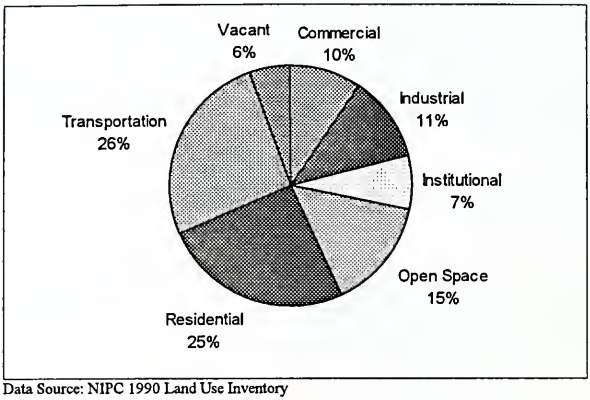
Land Use Category	Eastern Subarea	Central Subarea	Western Subarea
Residential	25%	43%	36%
Non-Residential	54%	32%	13%
Open Space	15%	13%	23%
Vacant	6%	12%	28%

Data Source: NIPC 1990 Land Use Inventory

Eastern Subarea

The eastern subarea is the most developed part of the corridor and contains a broad mix of land uses (see Figure 3-1). Only 6 percent of land remains vacant. Transportation accounts for the largest use, due in large part to O'Hare Airport. Residential development represents 25 percent of land use with commercial and industrial development together accounting for more than 20 percent of the total.

Figure 3-1: 1990 Land Use - Eastern Subarea



Data Source: NIPC 1990 Land Use Inventory

Major Activity Centers

Cumberland/I-90

A significant concentration of office and residential development is found near the interchange at I-90 and Cumberland Avenue. Development is primarily located to the west of Cumberland Avenue, both to the north and south of I-90. The predominant form of development is mid to high-rise office buildings, although several high-rise apartments buildings and some single-family residential and retail are also contained in this activity center.

Rosemont

A second major activity center is located just to the east of O'Hare Airport. This area contains a significant concentration of office development, the Rosemont Exposition Center, the Rosemont Theater, several major hotels and some single-family residential development. This cluster is separated from the Cumberland/I-90 activity center by conservation areas adjacent to the Des Plaines River.

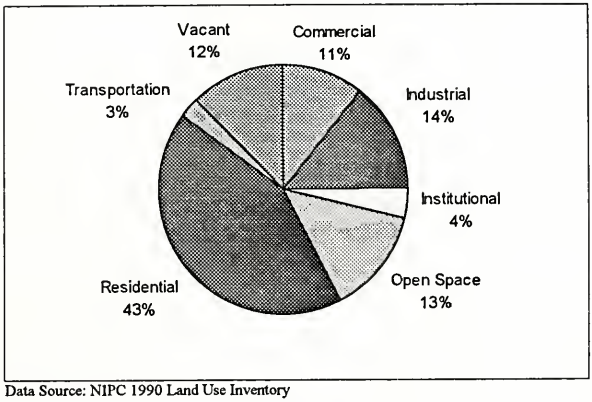
O'Hare Airport

O'Hare Airport is also a major activity center in the corridor. It is significant as a generator of trips by both employees and airport travelers. O'Hare Airport also consumes a large amount of land in the corridor with its terminal facilities, runways, and related operations. This activity center is discussed in detail in Chapter 9.

Central Subarea

As with the eastern subarea, the central subarea is highly developed with only 12 percent of land remaining vacant. Residential uses account for the highest proportion of land use at 43 percent of the total. Commercial and industrial development represent 25 percent, as displayed in Figure 3-2. The central subarea contains the highest concentration of industrial use in the corridor.

Figure 3-2: 1990 Land Use - Central Subarea



Data Source: NIPC 1990 Land Use Inventory

Major Activity Centers

Elk Grove Village/Bensenville Industrial Parks

The highest concentration of land dedicated to industrial use is found just west of O'Hare Airport in Elk Grove Village and Bensenville. Development in this cluster is almost exclusively industrial, with a mix of manufacturing and distribution facilities. This activity center is significant, both in terms of area covered and its effect on the corridor's transportation system. It stretches roughly from the western edge of O'Hare Airport on the east, Thorndale Road on the south, Algonquin Road on the north and a mile west of Busse Road on the west.

Rolling Meadows/Golf Road

The southern part of Rolling Meadows, the northwest corner of Elk Grove Village and portions of Arlington Heights also form a major activity center in the corridor. This cluster is located along Golf Road just to the east of IL 53/I-290, bounded roughly by IL 53/I-290 on

the west, Algonquin Road on the north, Busse Woods on the south, and Arlington Heights Road on the east, with some additional development just east of Arlington Heights Road to the south of Golf Road. As with the Rosemont and Cumberland/I-90 activity centers, the most dominant form of development is office space. However, office buildings in this cluster are spaced at greater distances than in the activity centers east of O'Hare Airport. Parking is generally on surface lots and many of the buildings are surrounded by significant green space. The result is a high concentration of office space, but at a lower density than in Rosemont or Cumberland/I-90. This activity center is currently experiencing an expansion of employment with a new facility under construction for
3-COM corporation, a proposal for two new office towers just east of IL 53/I-290 on Golf Road, and the construction of a new office building in Elk Grove Village just to the south of the Northwest Tollway and east of Arlington Heights Road.

Woodfield Regional Center

The Woodfield Regional Center stands as one of the most significant clusters of activity in the corridor with a concentration of retail, office and manufacturing. This cluster is roughly bordered by Algonquin Road on the north, Higgins Road on the south, Roselle Road on the west and I-290 on the east. However, some additional retail and office development is located south of Higgins Road along Martingale Road to the west of I-290.

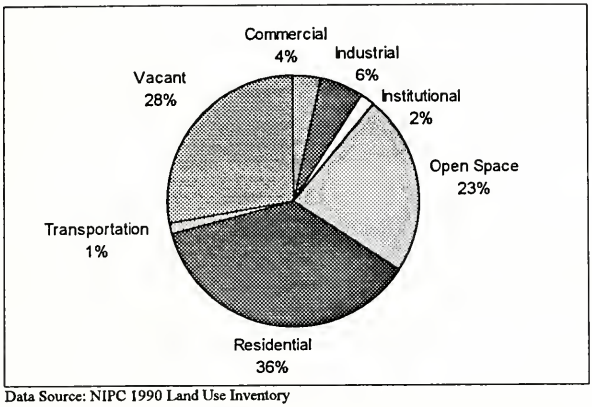
The mix of office and retail land uses found in this cluster is unique to the activity centers in the northwest corridor. Woodfield Regional Mall and One Schaumburg Place are two regional malls located in the middle of this activity center with office development to the north, south and west. Motorola's international headquarters is located at the northern edge of this activity center. Many of the office buildings in Woodfield are surrounded by surface parking and some greenspace. However, some buildings are accompanied by structured parking which allows for a greater density of development than in the Rolling Meadows/Golf Road cluster. This activity center is the most significant in the northwest corridor in terms of the number of office buildings and the amount of retail development. Three major new office developments are beginning or nearing construction within this activity center.

Western Subarea

The western subarea shows the most distinct pattern of land use in the corridor, as shown in Figure 3-3. It has both the highest proportion of vacant land, at 28 percent of the total, and open space, at 23 percent of the total. Consequently, the amount of developed land in the western subarea is small compared to the other two subareas. The high proportion of land dedicated to open space will also limit future development to a level below that found in the other two subareas. Residential use accounts for the bulk of developed land, at 36 percent of the total. Together, commercial and industrial development account for just 10 percent of total land use, less than half of that found in the other two subareas. It is important to note that the western subarea has experienced the most significant development of the three

subareas since the NIPC land use inventory was conducted in 1990. As a result, the estimates of land uses by categories are not as current and may understate the level of commercial and residential uses.

Figure 3-3: 1990 Land Use - Western Subarea



Data Source: NIPC 1990 Land Use Inventory

Major Activity Centers

Prairie Stone/Sears

Prairie Stone is a major office park where Sears is the dominant employer. Prairie Stone defines the western edge of the corridor. Buildings are spaced far apart and are surrounded by surface parking and green space. The density of office space in this cluster is much lower than in either Woodfield or Rosemont and the amount of office space is more limited than in other activity centers in the corridor. However, this area has the greatest potential for change with significant availability of vacant parcels within the development.

3.2 Employment

This second section provides information on employment in the northwest corridor with an emphasis on recent trends, employment types and spatial orientation. Employment information is summarized at several geographic levels including the region, the northwest corridor and the corridor's three subareas. This section also summarizes employment projections for 2020.

3.2.1 Employment Totals and Trends

Total employment in the northwest corridor increased at a faster pace than in the region during the 1980s and 1990s, as shown in Table 3-2. From 1980 to 1990, employment in the

corridor increased by 42 percent compared to 14 percent for the region. From 1990 to 1995, total employment in the corridor increased by 6 percent compared to 5 percent for the region.

The western subarea outpaced the other two subareas in employment growth since 1980. Employment in the eastern subarea, which includes O'Hare Airport, increased by 30 percent between 1980 and 1990, but by just 3 percent from 1990 to 1995. Total employment in the central subarea, which includes Elk Grove Village and Schaumburg, increased by 47 percent from 1980 to 1990, but since 1990 has increased by just 6 percent. The westernmost subarea experienced an increase of 79 percent from 1980 to 1990 and 22 percent from 1990 to 1995. Although the proportional increase in employment was higher for the western subarea during both periods, the absolute increase was actually higher for the central subarea.

Table 3-2: 1980-1995 Employment Trend

Study Area	1980	1990	1995	% Change 1980 to 1990	% Change 1990 to 1995
Region	3,386,000	3,845,000	4,038,000	14%	5%
NW Corridor	**356,000**	**506,000**	**537,000**	**42%**	**6%**
Eastern Subarea	154,000	200,000	205,000	30%	3%
Central Subarea	174,000	256,000	271,000	47%	6%
Western Subarea	28,000	50,000	61,000	79%	22%

Data Source: NIPC Employment Estimates

As shown in Table 3-3, employment is concentrated in the eastern two-thirds of the corridor with the largest number of employees in the central subarea. The westernmost subarea contains slightly more than 10 percent of the total employment in the corridor. The density of employment is highest in the central subarea based on the proportion of land dedicated to potential employment uses. The western subarea contains the lowest density of development.

Table 3-3: 1995 Employment Density

Study Area	Total Employment	Area (Sq. Miles)	Employment Density	Employment Density (Excludes Open Space, Vacant, & Residential Uses)
NW Corridor	**537,000**	**211**	**2,550**	**8,900**
Eastern	*205,000*	*49*	*4,162*	*7,700*
Central	*271,000*	*68*	*4,005*	*12,500*
Western	*61,000*	*94*	*651*	*5,000*

Data Source: NIPC 1995 Employment Estimates, April 1998

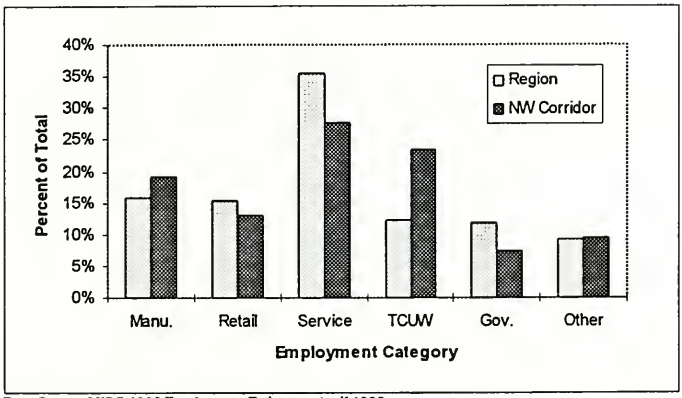
3.2.2 Employment by Industry

The northwest corridor contains a somewhat different mix of employment types than the region. Employment types also vary within the corridor. Employment is classified in one of the following six categories:

1) manufacturing;
2) retail;
3) service (includes finance, insurance, and real estate);
4) TCUW (transportation, communications, utilities and warehousing);
5) government; or
6) other (includes self-employment).

Figure 3-4 compares employment by industry in the northwest corridor to that in the region. The corridor shows a higher proportion of TCUW and manufacturing employment than does the region. Despite a significant concentration of retail development in the corridor, total employment in this category is below the regional average. Government and service sector employment also fall below the regional average.

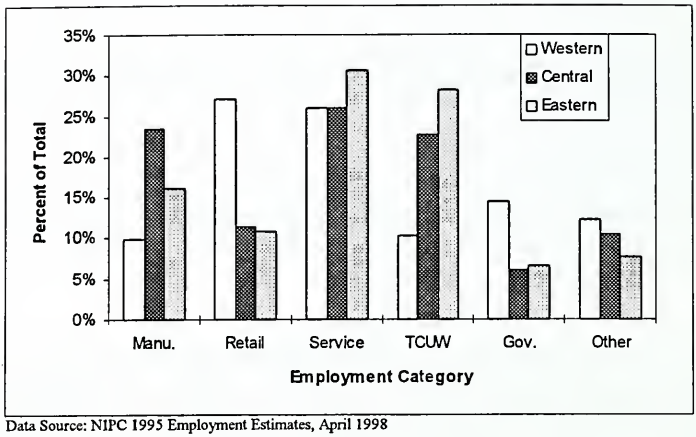
Figure 3-4: 1995 Employment by Industry



Data Source: NIPC 1995 Employment Estimates, April 1998

The composition of employment varies across the corridor as shown in Figure 3-5. In the easternmost subarea, much of the employment is concentrated in the TCUW and service sectors. The central subarea contains high levels of employment in the service, manufacturing and TCUW sectors for the highest concentration of manufacturing employment in the corridor. The westernmost subarea shows high levels of retail and service sector employment. The high level of retail employment is due, in large part, to the classification of many of the Sears employees in its headquarters location as retail sector employees.

Figure 3-5: Corridor Subarea 1995 Employment by Industry



Data Source: NIPC 1995 Employment Estimates, April 1998

3.2.3 Spatial Distribution of Employment

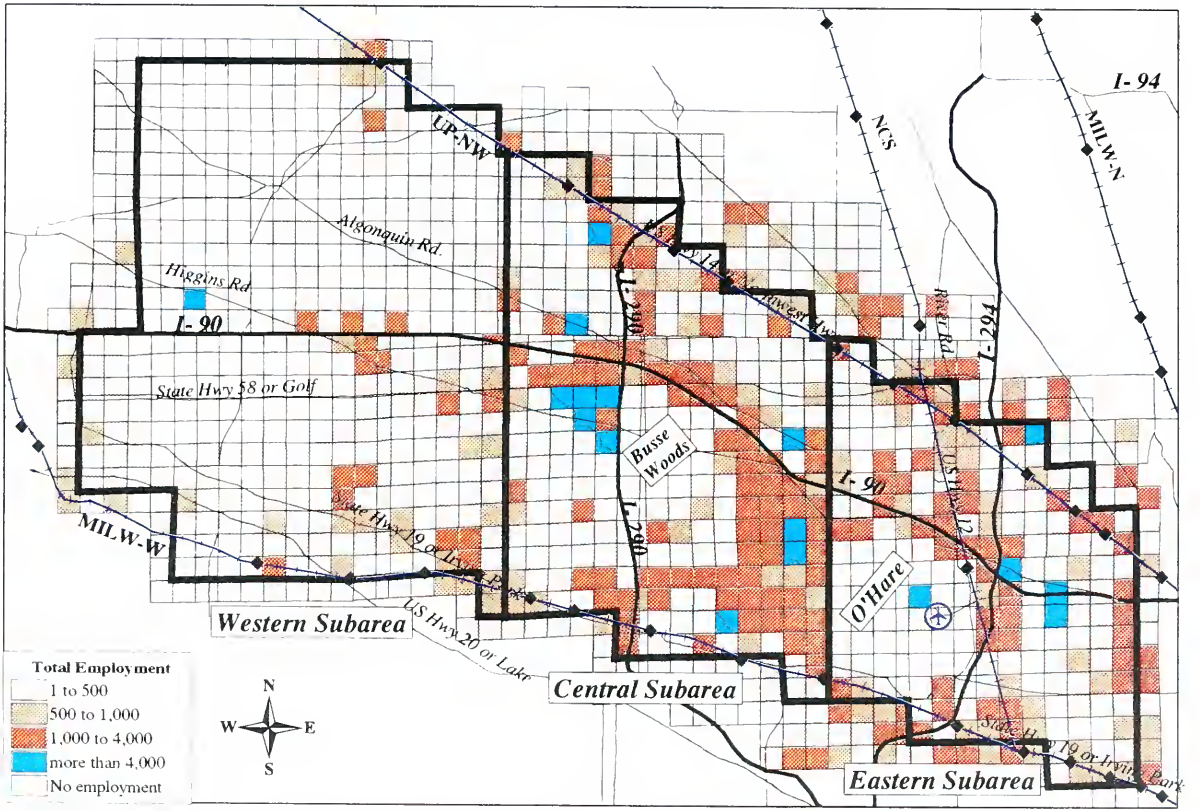
Employment concentrations in the corridor are found along major roadways including I-90 and major arterials. Exhibit 3-2 indicates the number of employees by quartersection in the corridor based on NIPC 1995 estimates. Four quartersections are equal to one square mile. Employment in the corridor is concentrated in several locations. Most of these locations are also identified in the land use discussion as activity centers in the corridor. Quartersections containing more than 4,000 employees are as follows:

- I-90 and Cumberland Avenue (Chicago);
- I-90 and River Road (Rosemont);
- O'Hare Airport (Chicago);
- Algonquin Road and Busse Road (Mount Prospect);
- Busse Road between Higgins and Devon (Elk Grove Village);
- Prospect Avenue between Thorndale and Irving Park (Itasca);
- Woodfield (Schaumburg, South of Golf Road, West of I-290/IL 53);
- Algonquin and Meacham (Schaumburg/Motorola);
- Plum Grove Road (South of Palatine Road, Palatine/Hoffman Estates); and
- Prairie Stone Business Park (Hoffman Estates/Sears).

In most cases, each of these clusters of employment is represented by one or two quartersections exceeding 4,000 employees. The Woodfield cluster is the most significant in terms of area covered, with five quartersections exceeding 4,000 employees. O'Hare Airport shows the highest concentration of any location in the corridor. Consistent with the general

Exhibit 3-2

1995 Employment by Quartersection



Note: Four Quartersections make up one-square mile.

Data Source: Northeastern Illinois Planning Commission
RTA System Planning Division, May 1998

spatial orientation of employment and commercial development in the corridor, all of these concentrations, with the exception of Prairie Stone, are located east of Roselle Road.

Exhibit 3-2 also shows several other areas with a substantial concentration of employment not identified as activity centers including clusters in Itasca and Wood Dale along Devon Avenue to the east of I-290, along Barrington Road north and south of I-90 in Hoffman Estates and in Rolling Meadows along Euclid Avenue to the east of IL 53.

3.2.4 Projected Changes in Employment

NIPC has projected employment growth in the corridor for the purposes of the 2020 Regional Transportation Plan (RTP). This forecasting process resulted in several different employment forecasts based on different airport and transportation system investments. For the purposes of this report, 2020 forecasts are summarized for the Existing Airports RTP Build Scenario. This forecasting scenario assumes that additional demand for air travel will be met at the region's existing airports with the full implementation of transportation projects in the 2020 RTP. This scenario has the most significant effect on travel in the northwest corridor.

NIPC employment forecasts for 2020, as shown in Table 3-4, indicate that employment in the corridor will increase at a pace faster than that of the region. The eastern and western subareas will experience the most rapid increases, although the central subarea will still increase at a pace faster than the region. In total, the corridor is expected to add more than 250,000 jobs by 2020, an increase of almost 50 percent over 1995. The western subarea is projected to increase at the fastest pace, but its projected employment in 2020 is projected as still just one-third of the other two subareas.

Table 3-4: 2020 Employment Projections

Study Area	1995	2020	% Change 1995 to 2020
Region	4,038,000	5,280,000	31%
NW Corridor	**537,000**	**795,000**	**48%**
Eastern Subarea	205,000	317,000	55%
Central Subarea	271,000	361,000	33%
Western Subarea	61,000	117,000	92%

Data Source: NIPC 1995 Employment Estimates and 2020 RTP Forecasts

3.3 Population

The third part of this chapter summarizes population in the corridor with a focus on recent changes, household characteristics, and projected changes by 2020. The 1990 Census provides the most comprehensive and reliable data source for information on household characteristics in the corridor. NIPC has provided estimated 1995 population estimates for the areas in the region outside of the city of Chicago.

3.3.1 Population Totals and Trends

Total population in the northwest corridor has increased at a rate above that of the region both during the 1980s and 1990s (see Table 3-5). Population increased in the corridor by 8 percent from 1980 to 1990 compared to just 2 percent for the region. From 1990 to 1995, population in the corridor increased by 5 percent compared to just 3 percent for the region.

Within the corridor, population is increasing at a faster pace in the western subarea. Although population growth has accelerated both in the region and in the northwest corridor during the 1990s, growth in the western subarea actually appears to slow during this later period. The central subarea population increased by 9 percent from 1980 to 1990, and 4 percent from 1990 to 1995. This pace exceeds the regional average during both periods. The eastern subarea experienced a net decline in total population from 1980 and 1990, although this trend reversed slightly from 1990 to 1995 with an increase of 2 percent.

Table 3-5: 1980-1995 Population Trends

Study Area	1980	1990	1995	% Change 1980 to 1990	% Change 1990 to 1995
Region	7,102,000	7,261,000	7,514,000	2%	3%
NW Corridor	**526,000**	**567,000**	**597,000**	**8%**	**5%**
Eastern Subarea	208,000	198,000	201,000	-5%	2%
Central Subarea	171,000	187,000	195,000	9%	4%
Western Subarea	147,000	182,000	201,000	24%	10%

Data Source: NIPC Estimates

Population growth has trailed increases in employment in the corridor since 1980. In all three subareas, employment growth significantly outpaced population growth from 1980 to 1990. During this period, employment increased by 42 percent in the corridor while population increased just 8 percent. Since 1990, employment growth has continued to outpace population growth although the gap has narrowed. During this period, employment increased by 6 percent in the corridor while population increased by 5 percent.

3.3.2 Density of Residential Development

Residential density in the eastern subarea is much higher than in the remainder of the corridor. Density calculations for each subarea provide a means to control for differences in the geographic size of the subareas. Based on NIPC land use data which summarizes the proportion of land dedicated to residential uses, a rough estimate of differences in the density of site level residential development across the corridor may be calculated. The result of these density calculations is shown in Table 3-6. The eastern subarea of the corridor has a much denser residential pattern than the remainder of the corridor with an average of more than

16,000 persons per square mile compared to less than 7,000 in the central subarea and less than 6,000 in the western subarea.

Table 3-6: 1995 Population and Residential Density

Study Area	1995 Population	Area (Sq. Miles)	% Land Use Residential	Population Density (Population/ Sq. Mile)	Residential Density (Residential Land Use Only)
NW Corridor	**597,000**	**211**	**36%**	**2,800**	**7,800**
Eastern Subarea	201,000	49	25%	4,100	16,300
Central Subarea	195,000	68	43%	2,900	6,800
Western Subarea	201,000	94	36%	2,100	5,900

Data Source: NIPC 1995 Suburban Population Estimates, May 1998

3.3.3 Spatial Distribution of Population

Population is distributed throughout the northwest corridor. Most of the population is located in areas with limited commercial and industrial development. As a result, areas with high concentrations of employment often contain few residents while areas with few employees have higher population levels. This relationship is the result of segmented commercial, residential, and industrial land uses in the corridor.

In general, population in the corridor does not show the same spatial variation in concentration as does employment. Exhibit 3-3 details 1995 population by quartersection in the northwest corridor. Few quartersections contain a total population in excess of 3,000. Areas in the with population concentrations of 3,000 persons per quartersection are represented as follows:

- Harlem Avenue at Fullerton & Addison;
- Elmhurst Road at Touhy;
- Elmhurst Road at Dempster;
- Algonquin at Dempster;
- Roselle Road at Schaumburg Road; and
- Barrington Road at Golf Road.

3.3.4 Household Characteristics

The population of the corridor shows an age distribution similar to the region (see Table 3-7). However, this distribution varies by subarea. The population of the western subarea is generally younger with just 5 percent of the population above the age of 65 compared to 18 percent in the eastern subarea.

Table 3-7: 1990 Population Distribution by Age

	Under 16	16-24	25-54	55-64	65+
Region	23%	13%	44%	8%	11%
NW Corridor	**21%**	**12%**	**47%**	**9%**	**11%**
Eastern	*17%*	*11%*	*42%*	*12%*	*18%*
Central	*20%*	*12%*	*49%*	*9%*	*10%*
Western	*26%*	*13%*	*50%*	*6%*	*5%*

Data Source: 1990 U.S. Census Transportation Planning Package
Due to rounding, percentages may not add up to 100%

Households in the corridor are more likely to have multiple workers than the mean regional household as indicated in Table 3-8. The highest workforce participation rate occurs in the western subarea where 57 percent of households have at least two workers. The eastern subarea shows the greatest proportion of households with no workers in the household, at 24 percent of the total, compared to just 8 percent in the western subarea.

Table 3-8: 1990 Workers per Household

Study Area	0	1	2+
Region	22%	37%	40%
NW Corridor	**17%**	**36%**	**47%**
Eastern Subarea	*24%*	*35%*	*41%*
Central Subarea	*15%*	*38%*	*47%*
Western Subarea	*8%*	*34%*	*57%*

Data Source: 1990 U.S. Census Transportation Planning Package
Due to rounding, percentages may not add up to 100%

The data in Table 3-9 indicates that the corridor has a higher level of income than the regional average. In particular, the corridor shows fewer households in the lowest income ranges, and a higher proportion of households in the highest income ranges. Within the corridor, incomes are higher in the west. The eastern subarea shows the highest proportion of households with incomes below $18,000 and the lowest proportion above $75,000. Conversely, the western subarea shows the higher income levels.

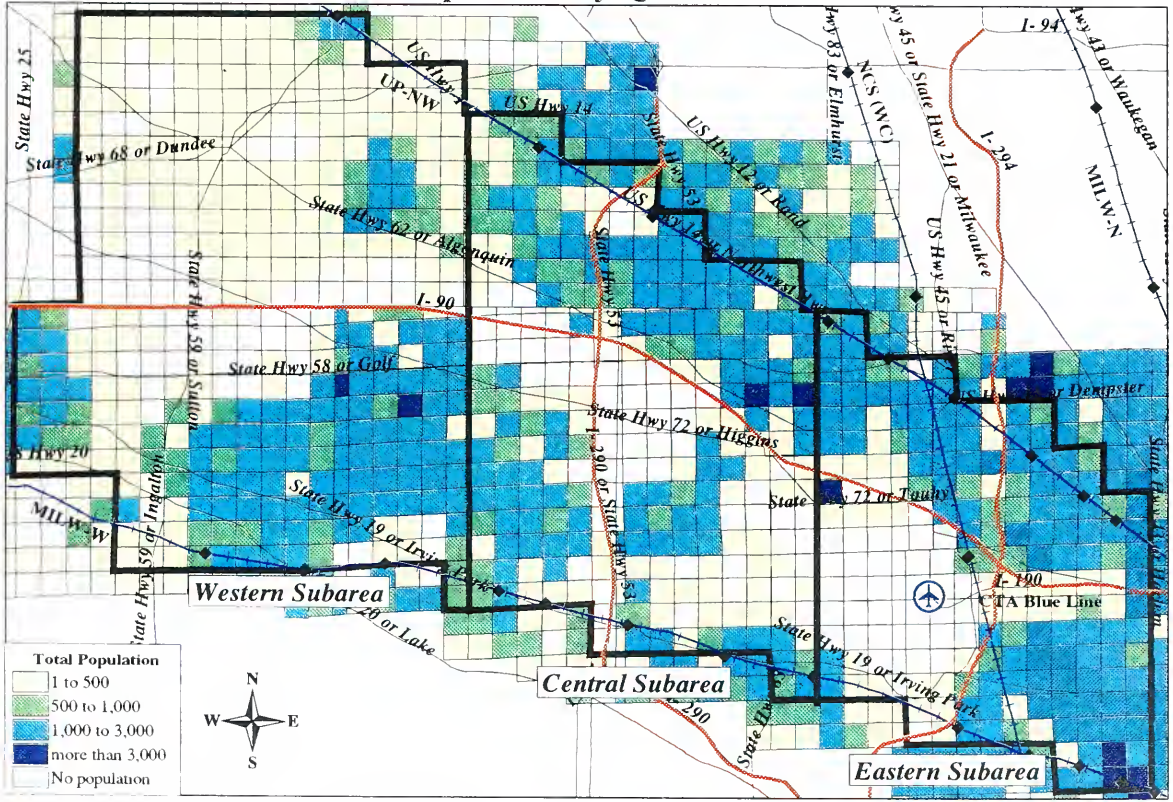
Table 3-9: 1990 Household Income Distribution

	<$18K	$18-40K	$40-75K	$75K+
Region	22%	33%	31%	14%
NW Corridor	**12%**	**30%**	**40%**	**18%**
Eastern	*16%*	*35%*	*35%*	*14%*
Central	*12%*	*29%*	*41%*	*18%*
Western	*8%*	*27%*	*45%*	*20%*

Data Source: 1990 U.S. Census Transportation Planning Package

Exhibit 3-3

1995 Population by Quartersection



Note: Four Quartersections make up one square-mile.

Data Source: Northeastern Illinois Planning Commission
RTA System Planning Division, May 1998

Vehicle ownership rates are higher in the corridor than in the region (see Table 3-10). However, ownership rates vary widely across the three subareas. In the western subarea, just 3 percent of households do not own a vehicle, compared to 9 percent in the eastern subarea. In the western subarea, 74 percent of households own at least two vehicles, compared to 62 percent in the central subarea and just 52 percent in the eastern subarea.

Table 3-10: Vehicles per Household

	0	1	2	3+
Region	17%	35%	35%	13%
NW Corridor	**6%**	**33%**	**44%**	**17%**
Eastern	*9%*	*39%*	*38%*	*14%*
Central	*5%*	*34%*	*45%*	*17%*
Western	*3%*	*24%*	*52%*	*22%*

Data Source: 1990 U.S. Census Transportation Planning Package
Due to rounding, percentages may not add up to 100%

3.3.5 Projected Changes in Population

The population forecasts for 2020 provided by NIPC call for continued population growth in the northwest corridor, but at a slower pace than for the region. Regional population is expected to increase by 20 percent, compared to 5 percent in the corridor (see Table 3-11). The western subarea is expected to increase at the fastest pace, while the eastern subarea is expected to decline slightly during this period.

Table 3-11: Projected Population Growth

Study Area	1995	2020	% Change 1995 to 2020
Region	7,514,000	9,045,000	20%
NW Corridor	**597,000**	**628,000**	**5%**
Eastern Subarea	*201,000*	198,000	-1%
Central Subarea	*195,000*	199,000	2%
Western Subarea	*201,000*	231,000	15%

Data Source: NIPC 1995 Population Estimates and 2020 RTP Forecasts

3.4 Summary

Several clusters of activity are found in the corridor. Activity clusters are those areas with a relatively high concentration of development and are often associated with a high level of employment. NIPC land use information, municipal data sources, and field observations indicate that the most significant activity centers in the corridor include the following:

- I-90/Cumberland Avenue;
- Rosemont;
- O'Hare Airport;
- Elk Grove Village/Bensenville Industrial Areas;
- Rolling Meadows/Golf Road;
- Woodfield Regional Center; and
- Prairie Stone.

Land use patterns in the corridor show that the eastern and central subareas contain only a small portion of vacant land. By contrast, the western subarea still maintains a high proportion of vacant land available for additional development. Residential development is found throughout the corridor while non-residential uses are more common in the eastern and central subareas.

According to data provided by NIPC, employment is concentrated in the central and eastern subareas. The separation of residential and commercial land uses in the corridor contributes to a spatial distribution of population which is lower in areas with higher levels of employment and higher in areas with less employment. From 1980 to 1990, the corridor's significance as a regional employment center increased dramatically. During this period, employment grew by 42 percent while population increased by just 8 percent.

NIPC population and employment forecasts through 2020 indicate that the corridor's significance as a regional employment center will continue to increase. Employment growth is expected to exceed population growth over the next 25 years. Population in the eastern and central subareas is expected to remain relatively stable, while employment growth is expected to continue. The western subarea is expected to experience the highest growth rates in employment and population through 2020. Despite high levels of growth, in 2020 the western subarea is expected to still contain a only small portion of total employment and population.

4. Northwest Corridor Highway System and Traffic

This chapter provides an overview of the roadway system in the northwest corridor as it exists today. The first section details major expressways and arterials in the corridor, with a discussion of major facility improvements and additions expected through 2020. The second section discusses the roadway system's ability to handle existing volumes with a detailed capacity analysis. The third section provides additional insight into the capacity analysis by focusing on traffic volumes by time of day and direction. Finally, the last section details changes in traffic volumes across the corridor since the early 1980s.

4.1 Highway System Overview

4.1.1 Expressway System

The northwest corridor is served by several major tollways and freeways, under the jurisdiction of either the Illinois State Toll Highway Authority (ISTHA) or the Illinois Department of Transportation (IDOT). Major expressways serving the corridor include I-90, I-190, I-294, IL 53/I-290, and the Elgin-O'Hare Expressway. A map of these roadways is contained in Exhibit 4-1.

The Northwest Tollway, I-90, has a general east-west orientation through the northwest corridor. The tollway is three lanes in each direction with the exception of two limited four lane sections including one located just west of Devon Avenue to the Toll Plaza and one westbound only from IL 53 to Roselle Road. The section west of Barrington Road in the western subarea of the corridor was widened from two to three lanes in each direction in 1992. The Tollway merges with I-190 just east of O'Hare Airport. To the east of this merge, I-90 is three lanes in each direction with the exception of a small portion around Cumberland which is four lanes.

I-294 follows a general north-south path just to the east of O'Hare Airport. This tollway is three lanes in each direction north of I-90 to beyond the study area boundary and four lanes in each direction south of I-90 to beyond the corridor boundary. The section south of I-90 was widened in 1993. This roadway is a part of the Tri-State Tollway which connects northern Indiana to Wisconsin following a path which bypasses the city of Chicago.

IL 53/I-290 is a north-south expressway located roughly in the center of the study area. This facility is four lanes in each direction through the corridor, with the exception of the section north of Kirchoff Road in Rolling Meadows. The northern terminus of this expressway is just north of the corridor at the Lake/Cook county border. It continues south beyond the corridor boundary and then splits with one fork turning east to downtown Chicago and the other running further south into DuPage County.

The Elgin-O'Hare Expressway is a 6.5 mile roadway that opened in 1993. This roadway is two lanes in each direction and connects IL 20 in Hanover Park to IL 53/I-290 and Thorndale Avenue. This expressway connects areas of Hanover Park and the southern part of Schaumburg to I-290 and industrial areas in Itasca, Bensenville and Elk Grove Village via Thorndale Avenue at its eastern terminus.

4.1.2 Arterial System

The northwest corridor is also served by an extensive network of arterials. Some of the more significant arterials are designated under the region's Strategic Regional Arterial (SRA) system. This designation establishes those arterials which are intended to serve regional trips. SRA routes in the corridor include east-west oriented Higgins/Touhy, Algonquin Road/Golf Road, Irving Park Road; and the north-south routes of IL 59, Barrington Road, Roselle Road/ Euclid Avenue/Quentin Road, IL 83, Mannheim Road, Cumberland Avenue, and Harlem Avenue. Other key arterials in the study area, which are not included in the SRA system, include Golf Road west of Algonquin, Devon Avenue, Thorndale Avenue, Schaumburg Road, Arlington Heights Road, and the Meacham Road/Plum Grove Road corridor.

In general, major arterials in the corridor provide a network of north-south and east-west routes. However, several major barriers, including O'Hare Airport and Busse Woods, limit the coverage of arterials in parts of the corridor. No arterials pass through O'Hare Airport and only Higgins Road passes through Busse Woods. Both of these barriers also limit the coverage of local streets that have the potential to reduce traffic on arterials. Similarly, the Northwest Tollway limits north-south alternatives, particularly to the west of IL 53.

4.1.3 Planned New Facilities

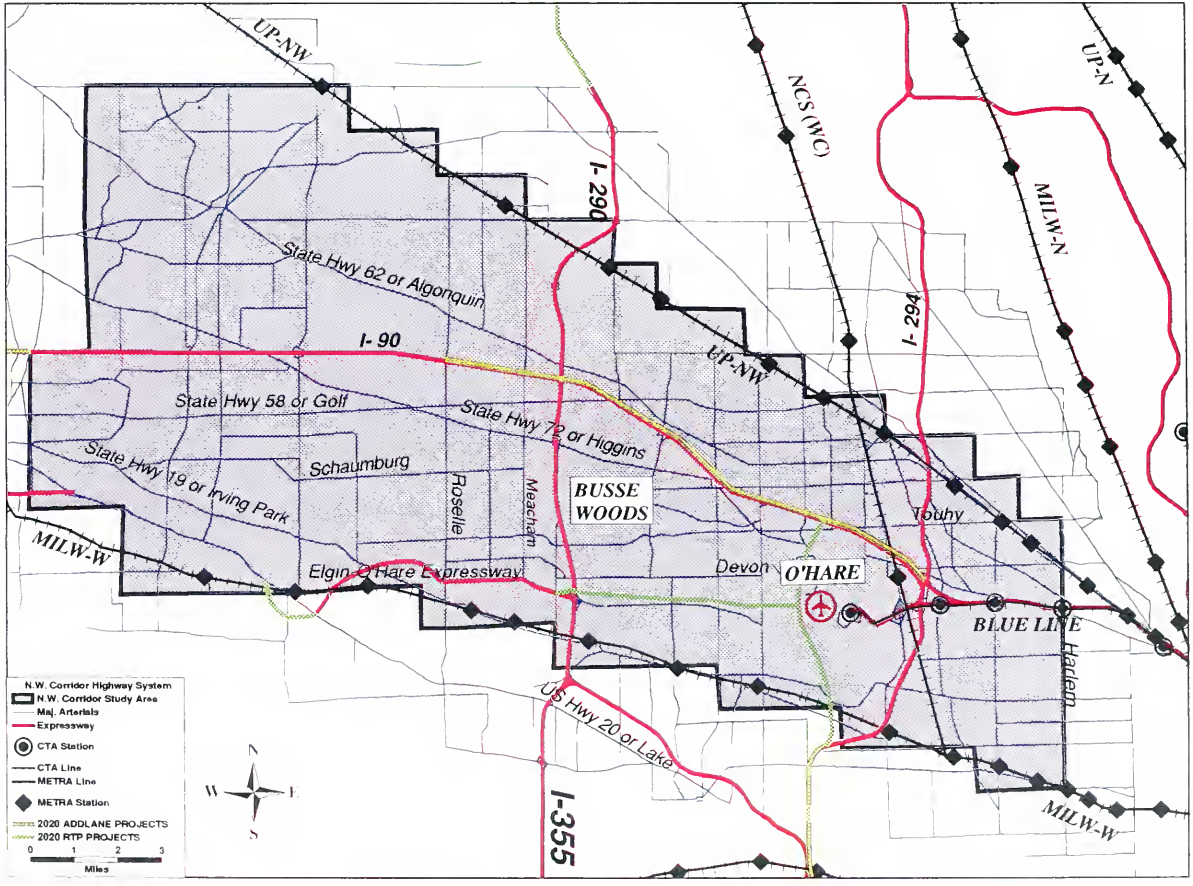
Several major enhancements to the roadway system are planned in the northwest corridor. Among the major facilities included in the recently approved 2020 Regional Transportation Plan are:

- I-90 Add Lanes, between I-294 and Roselle Road – Project calls for the widening of I-90 from three to four lanes in each direction. Planning work for this project is on hold in light of the Northwest Corridor Transit Feasibility Study
- O'Hare Bypass/East Elgin-O'Hare Extension – The O'Hare Bypass is a north-south roadway that will connect I-90 to I-294 west of O'Hare Airport and also connect into the East Elgin O'Hare extension. The East Elgin O'Hare extension is an east-west roadway that will connect the O'Hare Bypass to the Elgin O'Hare Expressway. Currently, ISTHA is not working on these projects.
- Elgin O'Hare Extension – This project calls for a two mile extension of the Elgin O'Hare Expressway from its current terminus in Hanover Park to US 20 in Streamwood. Currently, IDOT is not working on this project.

These enhancements are shown in Exhibit 4-1.

Exhibit 4-1

Northwest Corridor Highway System with Future Projects



RTA System Planning Division, May 1998

4.2 Roadway System Capacity Analysis

In this section, the volume to capacity ratios (v/c) for the roadways in the northwest corridor are calculated and mapped in order to provide a measurement of roadway congestion. Volume data is provided by the Illinois Department of Transportation (IDOT) for arterials, and by the Chicago Area Transportation Study (CATS) for expressways. Capacity information is provided by CATS. Roadway volume is measured in average daily traffic (ADT) while capacity is measured in passenger cars per hour per lane (pcphpl). After converting traffic volumes from daily to hourly values using CATS peak hour factors (PHFs)[1], the peak hour v/c is examined. Roadways with v/c ratios above 1 are experiencing significant levels of congestion and delay because there is more demand than supply for the roadway.

Capacity is defined as the amount of traffic a roadway is able to carry while still operating at a level of service (LOS) 'E' or better[2]. LOS is a qualitative measure describing roadway operating conditions as perceived by motorists. For expressways, LOS 'E' corresponds to speeds of 30 miles per hour and spacing between vehicles of 80 feet or less. For multiple lane arterials, LOS 'E' also corresponds to speeds of 30 mph. More information on LOS may be found in the Transportation Research Board's Highway Capacity Manual which provided the basis for this analysis. Exhibit 4-2 provides detail on peak hour v/c ratios on the roadway segments in the corridor where data is available.

V/C ratios in the northwest corridor indicate severe levels of congestion in this part of the region. Traffic volumes are exceeding capacity on many of the arterials and expressways in the corridor. Although data is more limited for the arterial system, almost all the major arterials are also experiencing volumes at or near capacity. Expressways and arterials *near or above capacity* during the peak hour include:

Expressways:

- I-90 (East of Roselle Road);
- I-190;
- I-294 (North of I-90);
- IL 53/I-290 (South of Higgins Road, North of Kirchoff Road); and
- Elgin O'Hare Expressway (East of Meacham).

[1] Peak hour factor is defined as the percentage of daily traffic that occurs during the peak hour. For expressways peak hour factor (PHF) is 7.8 percent; for arterials PHF is 10 percent.

[2] Capacity for expressways at a level of service (LOS) 'E' is estimated at 2,000 passenger cars per lane per hour (pcplph) under the ideal operating conditions. Using the Highway Capacity Manual guidelines, reduction factors based on lane width, number of lanes, lateral clearance, percentage of commercial vehicles and driver population (regular versus non-regular users) are applied to this baseline capacity. The capacity estimates provided by the CATS indicate an 18 percent reduction from the 2,000 base, or 1,650 pcplph. While CATS highway capacity data is the most comprehensive data source readily available, it may slightly overstate capacity constraints on expressways in the corridor.

East-West Arterials:

- Algonquin Road (Kane County Line to Barrington Road & Roselle Road to Mannheim);
- Higgins Road (East of Golf Road);
- Golf Road (East of IL 59);
- Thorndale Avenue (Elgin O'Hare Expwy. to IL 83); and
- Irving Park Road (East of I-290).

North-South Arterials:

- Harlem Avenue;
- Cumberland Avenue (South of I-90);
- River Road;
- Elmhurst Road (North of Devon Avenue);
- IL 83 (South of I-90);
- Meacham Road (North of Schaumburg Road);
- Roselle Road (North of Schaumburg Road);
- Barrington Road; and
- Portions of IL 59.

A selected number of arterials and expressways in the corridor have the potential to carry some additional traffic. Major expressways with additional capacity include I-90 to the west of Roselle Road and I-294 south of I-90 to beyond the northwest corridor boundary. Most of the arterials with available capacity are limited in their ability to serve regional trips due to a lack of connections to other roadways. As an example, Schaumburg Road is operating below capacity, but does not cross Busse Woods.

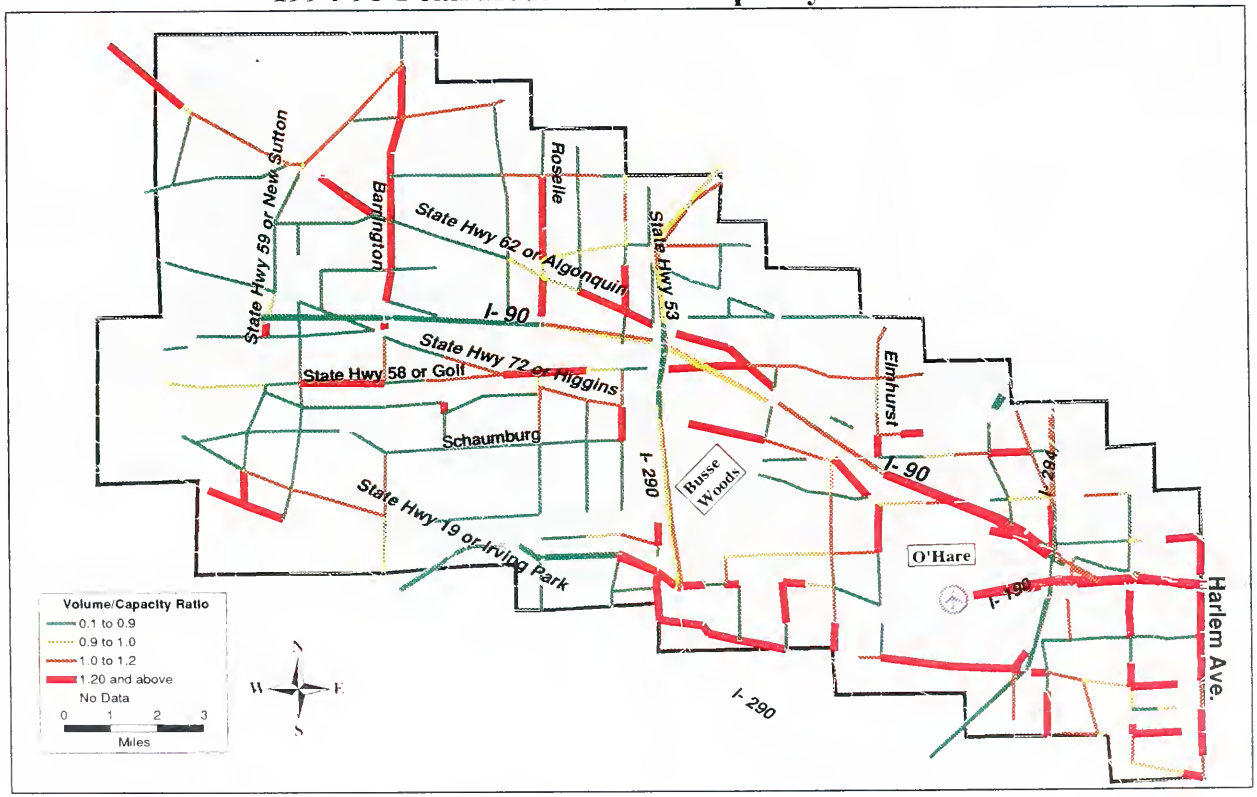
Although many of the major arterials are close to or above capacity, some traffic may be accommodated by parallel collector streets or minor roadways. This is particularly true east of I-290/IL 53 where a grid system of local roads is in place. West of IL 53/I-290, collector streets and local roadways do not follow a grid pattern. As a result, fewer alternatives exist for local trips in this area which places a greater demand on the arterial system.

4.3 Peaking and Direction of Traffic

An important component of the capacity analysis is an evaluation of the peaking of volumes and the directional orientation of traffic movement. This data provides information on the time of day during which the transportation system in the northwest corridor is experiencing its most significant problems. ISTHA has provided 24-hour vehicle counts at toll plazas in the study corridor. IDOT has provided data on intersection movements for selected locations in the corridor. This intersection data provides a more limited picture of general directional flow and peaking.

Exhibit 4-2

1994-95 Peak Hour Volume/Capacity Ratios



Data Source: IDOT - Arterial Counts
CATS - Expressway Counts, Roadway Capacity

RTA System Planning Division, May 1998

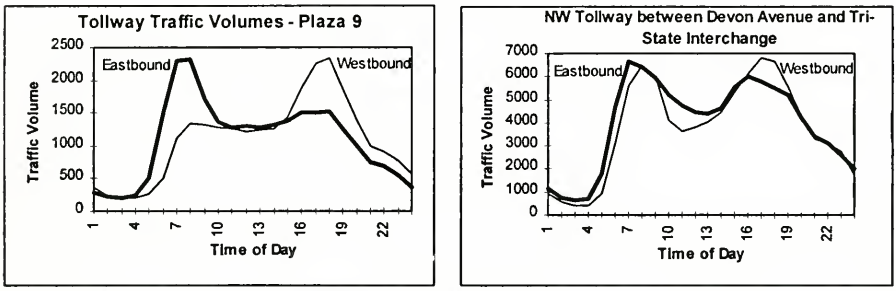
4.3.1 Tollways

Time of day travel information is available for five mainline toll plazas in or adjacent to the northwest corridor. Three of these are located on I-90 and the remaining two on the Tri-State Tollway. The five toll plazas are as follows:

- Toll Plaza 9 – Westbound & Eastbound I-90 in Elgin;
- Toll Plaza 17 – Westbound I-90 @ Devon Avenue;
- Toll Plaza 19 – Eastbound I-90 @ River Road;
- Toll Plaza 29 – Northbound Tri-State Tollway @ Touhy Avenue (North of I-90); and
- Toll Plaza 33 – Southbound Tri-State Tollway @ Irving Park (South of I-90).

Time of day traffic volumes on I-90 indicate a traditional commuting pattern in the western subarea and a bi-directional commuting pattern in the eastern subarea. Figures 4-1 and 4-2 detail time of day movements on the Northwest Tollway in the northwest corridor.

Figure 4-1: Northwest Tollway Hourly Traffic Variation



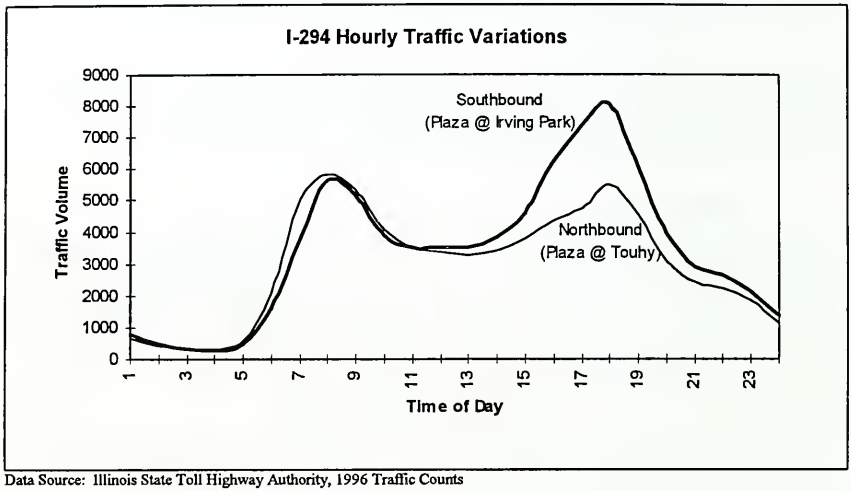
Note: Eastbound hourly traffic volumes between Devon Avenue and Tri-State interchange were calculated based on time of day distribution at River Road Plaza.
Data Source: Illinois State Toll Highway Authority, 1996 Traffic Counts

Peaking patterns vary significantly between plazas on the Northwest Tollway. Plaza 9, at the western edge of the northwest corridor, has a relatively traditional peaking of volumes eastbound in the morning and westbound in the evening. This pattern is expected, given the significant level of employment to the east of the plaza.

Traffic in the eastern subarea shows a much different pattern. On the Tollway at Devon Avenue, eastbound traffic peaks slightly higher in the morning while westbound traffic peaks slightly higher in the evening. However, the difference in traffic volumes between the two periods is nominal, particularly compared to movements at the western edge of the study area. This pattern of peaking during both the morning and evening indicates a significant level of commuting in both directions.

Data from the Tri-State Tollway (see Figure 4-2) indicates a similar peak in the morning for both northbound and southbound traffic, and a much higher peak southbound in the evening. Data on northbound movements are captured at a location north of I-90 and southbound movements by a plaza south of I-90. One of the weaknesses in data from the Tri-State Tollway is the absence of plazas which capture northbound and southbound movements at the same location. Despite this limitation, it does appear that a general bi-directional commuter pattern exists with more traffic headed south in the evening.

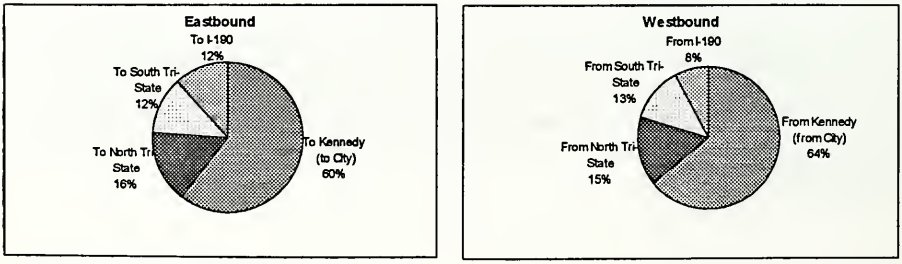
Figure 4-2: Tri-State Tollway Time of Day Travel



Data Source: Illinois State Toll Highway Authority, 1996 Traffic Counts

Interchange movements between the Northwest Tollway, Tri-State Tollway, and Kennedy Expressway in the eastern subarea reveal important directional information for Northwest Tollway traffic. As indicated in Figure 4-3, 60 to 64 percent of Northwest Tollway traffic is going to or coming from the direction of the city of Chicago and 28 percent connects to the Tri-State Tollway. Trips connecting to I-190 account for the remaining 8 to 12 percent of traffic.

Figure 4-3: 1995 NW Tollway Traffic Movement at Tri-State Interchange



Data Source: CATS 1995 Travel Atlas

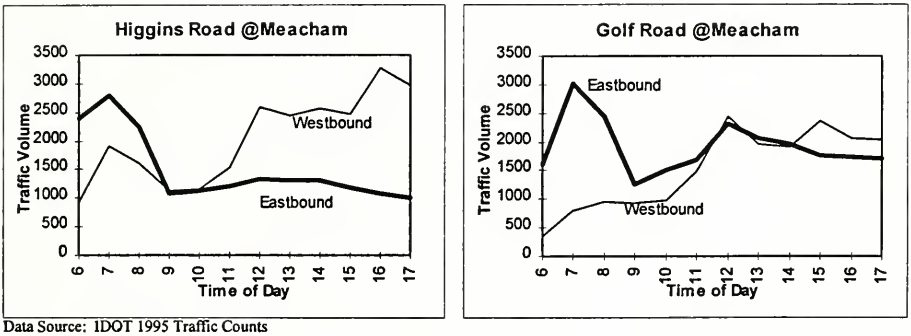
4.3.2 Arterials

Data on the directional movement of traffic on arterials is less complete. Several limitations to this data make it difficult to establish strong conclusions. First, coverage of the data is limited. IDOT has provided intersection data for those locations where this information has been gathered in approximately the last five years. This data provides traffic counts for approaching traffic in each direction as well as turning movements. In contrast to tollways with limited choices for exits, local arterials offer many options for movement including turns, driveways, and through traffic. As a result, specific intersections may be affected by local land uses or other localized impacts. No data is available to indicate the proportion of long distance trips or to establish a general pattern of movement by time of day. In addition, data is available only from 6:00 a.m. to 5:00 p.m. This time period limits the coverage during the evening peak. Despite these limitations, this data provides some indication of peaking by time of day.

Specific data analyzed to examine time of day movements was collected in 1994 and 1995 and is confined to three east-west and one north-south facilities at the following locations:

- Higgins Road @ Meacham;
- Golf Road @ Meacham;
- Algonquin Road @ IL 83; and
- Busse Road between Algonquin & Higgins.

Figure 4-4: Hourly Traffic Variations at Selected Arterials – I



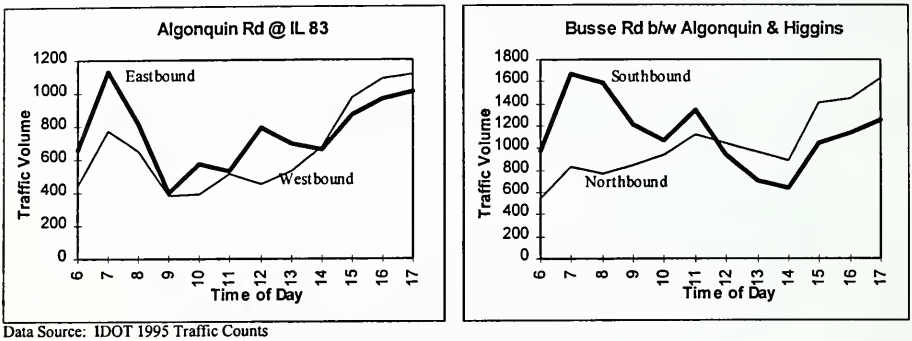
Data Source: IDOT 1995 Traffic Counts

An analysis of arterial data indicates higher peaks in the morning eastbound and westbound in the evening. Time of day traffic movement by direction for the first two intersections, which are both located just west of I-290/IL-53 are shown in Figure 4-4. Higgins Road shows a more distinct travel pattern, with higher volumes eastbound in the morning and westbound in the evening. Golf Road shows a higher volume eastbound in the morning, but a similar level of traffic in both directions in the evening. Both locations show high volumes of midday traffic. The midday peak is more pronounced on Golf Road, where heavy volumes continue

through the afternoon and evening in both directions. The high midday volumes may be the result of the concentration of retail development including Woodfield Mall.

An examination of the IDOT arterial data for locations just west of O'Hare Airport shows a similar pattern of peaking in the morning and evening, as shown in Figure 4-5. A more distinct pattern occurs on Busse Road with higher movement southbound in the morning and northbound in the evening. Traffic on Algonquin Road shows more of a bi-directional peaking pattern similar to the tollway plazas at Devon and River Road. As indicated before, high volumes of midday trips are shown on all the major arterials in the corridor.

Figure 4-5: Hourly Traffic Variations at Selected Arterials – II



Data Source: IDOT 1995 Traffic Counts

Intersection data from these locations indicates less pronounced peaks in the morning and evening than on the expressway system. In general, east-west arterials show a heavier peak eastbound during the morning and westbound in the evening. However, the difference between westbound and eastbound movements is less pronounced in the evening, with a generally higher level of traffic volumes in both directions. Arterials also show a higher proportion of midday trips. This finding is consistent with a traditional commuting pattern in the western subarea and bi-directional commuting patterns in the eastern subarea.

4.4 Changes in Traffic Volume

4.4.1 Expressway System

Traffic volumes have increased in the 1980s and 1990s across the expressway system in the northwest corridor. In the 1980s, both north-south expressways in the corridor experienced increases of more than 7 percent annually. However, growth in the 1990s was less substantial on north-south expressways with the most significant increases occurring on east-west facilities, particularly the Northwest Tollway.
Table 4-1 details traffic volumes for 1984, 1990 and 1995.

Table 4-1: 1984-1995 Growth In Expressway Traffic Volumes

Location	1984	1990	1995	Annual % Change 1984-1990	Annual % Change 1990-1995
East-West Expressways					
NW Tollway (I-90)					
Plaza 19, just west of I-190	115,200	125,000	136,100	1.37%	1.72%
Plaza 17, just west of Devon	120,700	158,600	178,800	4.66%	2.43%
East of Elmhurst Rd.	112,600	146,700	166,600	4.51%	2.58%
Between Elmhurst & Arlington Hgts. Rd.	88,200	116,700	135,400	4.78%	3.02%
East of IL 53/I-290	73,800	98,200	119,600	4.88%	4.02%
West of IL 53	65,000	103,000	128,900	7.97%	4.59%
Between Roselle Rd. & Barrington Rd.	65,000	85,600	109,900	4.70%	5.12%
Between Barrington Rd. & IL 59	38,200	52,800	84,300	5.54%	9.81%
Average	**84,838**	**110,825**	**132,450**	**4.55%**	**3.63%**
Kennedy (I-90)					
West of Cumberland	165,500	199,100	220,500	3.13%	2.06%
West of Canfield	159,500	185,900	207,200	2.59%	2.19%
Average	**162,500**	**192,500**	**213,850**	**2.86%**	**2.13%**
I-190					
East of Mannheim	107,800	112,600	124,800	0.73%	2.08%
West of Mannheim	66,300	73,800	89,700	1.80%	3.98%
Average	**87,050**	**93,200**	**107,250**	**1.14%**	**2.85%**
Elgin-O'Hare					
Rte. 20/Springinsguth	N/A	N/A	35,500	N/A	N/A
Springinsguth/Wright	N/A	N/A	66,200	N/A	N/A
Roselle/Meacham	N/A	N/A	77,900	N/A	N/A
Meacham/IL 53	N/A	N/A	80,900	N/A	N/A
Average	**N/A**	**N/A**	**65,125**	**N/A**	**N/A**
North-South Expressways					
Tri-State (I-294)					
South of Irving Park Rd.	85,000	121,600	136,900	6.15%	2.40%
S. of I-190	98,000	142,800	157,100	6.48%	1.93%
S. of Touhy	89,200	140,200	155,000	7.83%	2.03%
S. of Dempster	77,500	124,400	136,400	8.21%	1.86%
Average	**87,425**	**132,250**	**146,350**	**7.14%**	**2.05%**
I-290/IL 53					
NW Hwy./Euclid Ave.	81,400	126,000	129,500	7.55%	0.55%
Euclid/Kirchoff	87,900	136,800	139,000	7.65%	0.32%
Kirchoff/Algonquin Rd.	95,500	148,700	151,600	7.66%	0.39%
Algonquin/NW Tollway	105,000	163,500	159,100	7.66%	-0.54%
NW Tollway/Golf Road	108,200	170,600	170,400	7.88%	-0.02%
Higgins/Beisterfield	97,300	145,700	166,200	6.96%	2.67%
Beisterfield/Thorndale Ave.	97,300	150,200	164,900	7.50%	1.88%
Average	**96,086**	**148,786**	**154,386**	**7.56%**	**0.74%**

Data Source: CATS 1984, 1990 and 1995 Expressway Atlas

East-West Expressways

Within the corridor, traffic volumes have increased consistently on the Northwest Tollway since 1984. Since 1990, volumes have increased more rapidly in the western subarea. Growth rates in the central and eastern subareas may be influenced by capacity constraints.

The Elgin-O'Hare Expressway, although new to the region's expressway system in 1993, already carries a significant volume of traffic. This facility is 6.5 miles in length and connects I-290 and Thorndale Avenue on the east to IL 20 in Hanover Park on the west. Despite its limited service area, by 1995 this facility carried average daily volumes of more than 80,000 just west of I-290. Volumes on the Elgin O'Hare Expressway are still below the other expressways in the northwest corridor.

The opening of the Elgin-O'Hare Expressway has had some impact on the Northwest Tollway traffic as indicated in Table 4-2. Traffic volumes on the section of the Northwest Tollway parallel to the Elgin-O'Hare Expressway increased at a slower pace after the opening of the new expressway in 1993. Some traffic may have been diverted from the Northwest Tollway to the Elgin-O'Hare Expressway to reach I-290/IL-53 at Thorndale Avenue.

Table 4-2: Assessment of Elgin-O'Hare Expressway Impact on NW Tollway

Year	Between Barrington Rd. & IL 59	Between Roselle Rd. & Barrington Rd.	West of I-290/IL 53	Average Traffic	Annual Growth Rate	Average Annual Growth Before and After
1990	52,800	85,600	103,000	80,467		
1991	53,990	89,350	111,080	84,807	5.4%	
1992	63,210	93,360	115,460	90,677	6.9%	
1993	72,490	99,910	118,980	97,127	7.1%	4.8%
1994	79,980	105,140	123,130	102,750	5.8%	
1995	84,300	109,900	128,900	107,700	4.8%	
1996	89,300	115,200	133,900	112,800	4.7%	3.3%

Data Source: Illinois State Toll Highway Authority, Annual Traffic Counts

North-South Expressways

North-south expressways have not experienced the same rapid rate of increase in traffic volumes since 1990. The Tri-State Tollway has experienced higher annual growth rates than IL 53/I-290. The higher growth rates on this expressway are likely due to a widening completed in 1992.

4.4.2 Screenline Data (Arterials & Expressways)

Several screenlines were selected in the corridor to determine changes in traffic volumes across the northwest corridor. This screenline approach allows for an assessment of the general trends in traffic volumes in different subareas of the corridor. As expressways and

major arterials in the corridor approach capacity, traffic may divert to parallel facilities with less significant delays. The screenline approach captures some of these diversions and is able to assess general increases in traffic volumes. For each screenline, expressways and major arterials with the potential to carry longer distance trips were included. Screenlines do not include smaller collector streets or local roadways.

Five screenlines were chosen to assess general east-west movement in the corridor. Traffic volumes were collected for major arterials at each screenline for the years 1982, 1990, and 1994. In some instances, data was not available for specific routes for the given years, so data for the most recent year available was collected. The location of screenlines is intended to capture movements between various activity centers. The five screenline locations are displayed in Exhibit 4-3. The traffic volumes are shown in Table 4-3.

Table 4-3: Screenline Traffic Volumes for East-West Movements

	Traffic Volume 1982	Traffic Volume 1990	Traffic Volume 1994	Average Annual Change 1982-1990	Average Annual Change 1990-1994
E. of Barrington Rd. (Screenline 1)	**169,550**	**249,100**	**271,500**	**4.93%**	**2.18%**
Arterials	*108,650*	*163,500*	*166,400*	*5.24%*	*0.44%*
I-90	*60,900*	*85,600*	*105,100*	*4.35%*	*5.26%*
W. of Roselle Rd. (Screenline 2)	**201,200**	**270,300**	**349,000**	**3.76%**	**6.60%**
Arterials	*140,300*	*184,700*	*178,700*	*3.50%*	*-0.82%*
I-90	*60,900*	*85,600*	*105,100*	*4.35%*	*5.26%*
Elgin O'Hare Expwy.	*N/A*	*N/A*	*65,200*	*N/A*	*N/A*
E. of Busse Woods (Screenline 3)	**245,900**	**282,300**	**302,400**	**1.74%**	**1.73%**
Arterials	*175,700*	*184,100*	*187,700*	*0.59%*	*0.49%*
I-90	*70,200*	*98,200*	*114,700*	*4.28%*	*3.96%*
E. of O'Hare Airport (Screenline 4)*	**221,300**	**271,200**	**316,900**	**2.57%**	**3.97%**
Arterials	*107,100*	*113,600*	*146,200*	*0.74%*	*6.51%*
I-90	*114,200*	*157,600*	*170,700*	*4.11%*	*2.02%*
W. of Cumberland (Screenline 5)	**268,500**	**316,100**	**334,700**	**2.06%**	**1.44%**
Arterials	*109,000*	*117,000*	*119,400*	*0.89%*	*0.51%*
I-90	*159,500*	*199,100*	*215,300*	*2.81%*	*1.97%*

* Excluding I-190, O'Hare Airport Access Road
Data Source: CATS 1984, 1990, and 1995 Expressway Atlas, IDOT 1982, 1990 and 1994 Traffic Maps for Arterials

Traffic volumes across all five screenlines increased during both the 1980s and 1990s. Subtotals for arterials and expressways also increased for all five corridors in the 1980s. In the 1990s, the screenline west of Roselle Road showed a decrease in the subtotal for arterial traffic, but all four other screenlines showed an increase for arterial and expressway subtotals. The decrease in arterial volumes for the screenline west of Roselle Road is most likely due to the opening of the Elgin O'Hare Expressway in 1993.

In the 1980s, increases in traffic volumes were generally higher in the western subarea and the rates of growth decline from west to east. The exception to this pattern is the central

screenline located between Elk Grove Village and Schaumburg, which showed the slowest rate of growth during this period.

In the 1990s, no clear trend has emerged from growth rates in traffic volumes. The screenline west of Roselle Road exhibits the highest rate of growth, likely due to the opening of the Elgin O'Hare Expressway. The growth rate of traffic at the screenline just west of the entrance to O'Hare Airport follows with the second highest rate. The remaining three screenlines exhibit higher increases in the west, declining to the east.

The Northwest Tollway plays a significant role in carrying east-west traffic as indicated in Table 4-4. The tollway carries more than one-third of total traffic through much of the northwest corridor. The tollway carries a greater proportion of total traffic near O'Hare airport, likely due in part to the narrowing of the corridor and fewer travel options around the airport. The corridor narrows moving from west to east which reduces the number of arterials included in the screenline. The screenlines do not include local roadways which are more common in the eastern subarea. Despite these limitations of the summary data, this information indicates the significance of the Northwest Tollway in east-west movements.

Table 4-4: Northwest Tollway Traffic Share by Screenline Locations

	% of Total Traffic on the Northwest Tollway		
Location	1982	1990	1994
Screenline #1: East of Barrington Rd.	36%	34%	39%
Screenline #2: West of Roselle Rd.	30%	32%	30%
Screenline #3: West of Arlington Rd.	29%	35%	38%
Screenline #4: East of O'Hare Airport	52%	58%	54%
Screenline #5: West of Cumberland	59%	63%	64%

Data Source: CATS 1984, 1990, and 1995 Expressway Atlas, IDOT 1982, 1990 and 1994 Traffic Maps for Arterials

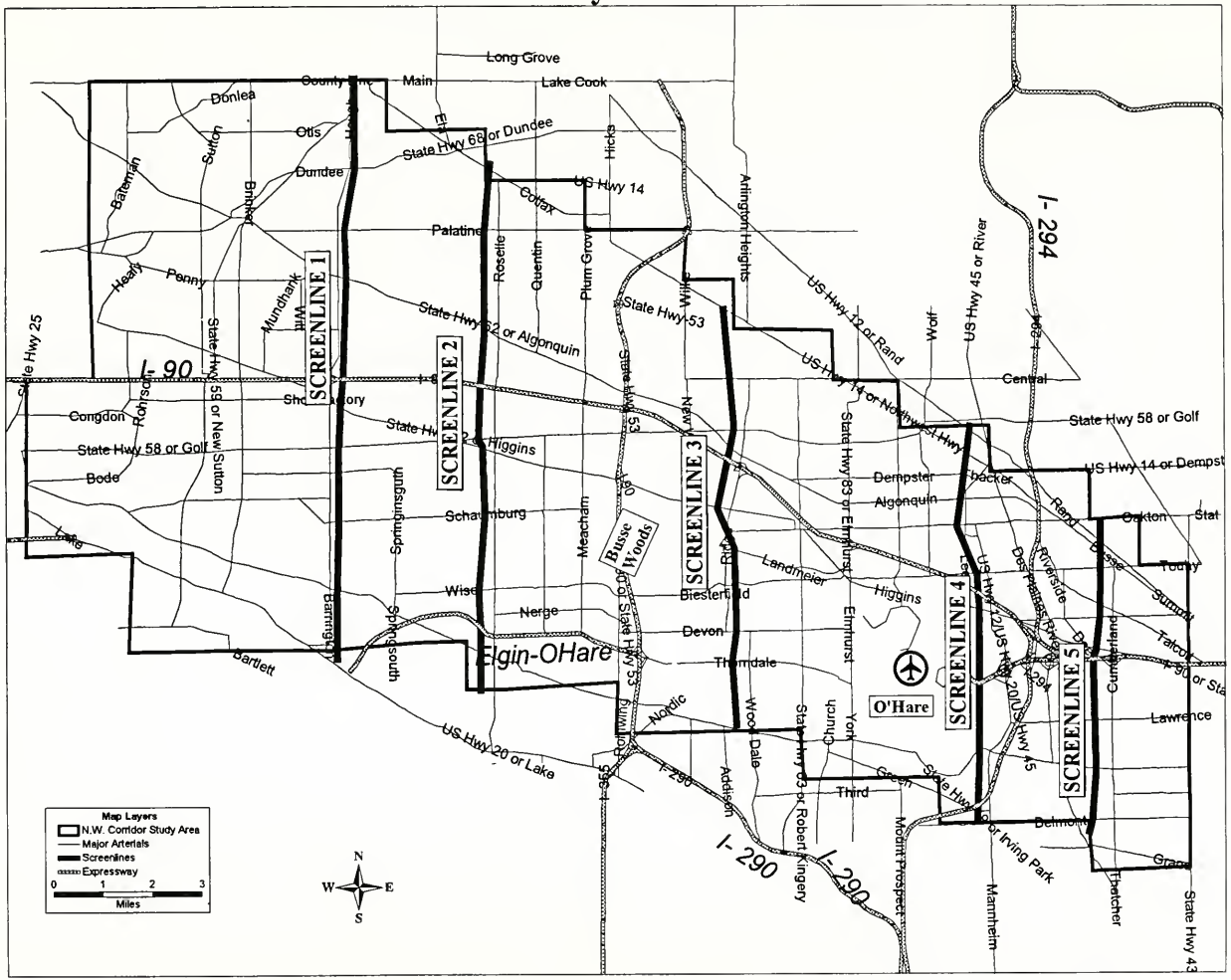
4.5 Summary

According to data provided by ISTHA, IDOT, and CATS, the northwest corridor is experiencing a tremendous strain on its arterial and expressway system. Much of the corridor's expressway system and most of the major arterials are carrying daily volumes that exceed the capacity of the roadways. Insufficient capacity is more widespread east of Roselle Road than west of it. On the Northwest Tollway, congestion is particularly severe to the east of Elmhurst Road.

The strain on the roadway system is most pronounced during the morning and evening peak periods. In the eastern subarea, this peak is bi-directional, with slightly higher volumes headed toward the city of Chicago in the morning and slightly higher volumes headed outbound in the evening. In the western subarea, volumes also peak in the morning and evening. However, volumes peak toward the city of Chicago in the morning and outbound in the evening. In general, the expressway system in the corridor experiences more significant

Exhibit 4-3

Arterial and Tollway Screenline Locations



RTA System Planning Division, May 1998

peaks than does the arterial system. Despite capacity constraints on the roadway system, traffic volumes in the corridor are continuing to increase. The continued growth in volumes is likely to result in a continued deterioration of traffic conditions on both the expressway and arterial systems.

Some of the more significant findings based on ISTHA, IDOT and CATS traffic and capacity data include:

- The corridor experiences heavy volumes on its roadway network during the morning and evening peaks;
- The evening peak is more intense and longer in duration than the morning peak;
- The arterials show more consistent volumes during the day with less substantial peaking during the morning and evening than expressways in the corridor;
- The Northwest Tollway carries a high proportion of east-west traffic movement in the corridor;
- The opening of the Elgin O'Hare Expressway has had little dampening effect on traffic growth on the Northwest Tollway and parallel arterials;
- Since 1990, traffic volumes have grown on the Northwest Tollway, with the highest increases in the western subarea of the corridor; and
- Traffic has increased more on the Northwest Tollway than on adjacent arterials.

5. Roadway System Users

This chapter details general travel patterns among auto users in the northwest corridor. The data source is the 1990 Chicago Area Transportation Study (CATS) Household Travel Survey which serves as the most comprehensive source of data on daily trips in the six-county Northeastern Illinois region. The first section discusses the general patterns of travel both within and outside of the corridor. This section details estimates of the volume of travel into and out of the corridor on a daily basis. It also provides insight into those areas with strong connections to the corridor. The second section provides detail on the characteristics of these trips, including trip purpose, travel by time of day, and travel times.

5.1 Daily Auto Travel Patterns

The 1990 CATS survey may also be used to report on the flow of trips in the region. This survey was conducted at the household level and follows the daily trips of 19,314 households in the region. More than 160,000 trip records were collected which contain detail on trip origins and destinations, purposes, mode of travel, travel time, and the time of day of travel. Almost 17,000 trips records were collected for trips with an origin or destination within the northwest corridor. The survey responses are weighted based on demographic variables of household size, auto ownership, and spatial characteristics of respondents.

According to the survey, more than 86 percent of the regional daily person trips were made by automobiles with the remaining 14 percent of travel occurring by walking, transit or some other mode. Within the corridor, 91 percent of the total daily person trips were made by automobiles and 9 percent by walking and transit. Given the dominance of auto travel, the auto travel market will serve as the focus of this section.

The 1990 CATS Household Travel Survey (HHTS) provides data on the flow of auto traffic in the region[1]. A total of 15.7 million trips are made by auto in the region on a daily basis. Of this total, 2.3 million, or 15 percent, have an origin and/or destination in the northwest corridor. Within the northwest corridor, 55 percent of auto trips occur within the study area boundaries. The remaining trips have either an origin or destination outside of the corridor. The strongest connections to the corridor include north suburban Cook (20 percent), DuPage County (11 percent), and the City of Chicago (13 percent), particularly on the north side of the city accounting for the majority of these trips (10 percent). No other geographic area accounts for more than 4 percent of daily trips. Despite the close proximity of Lake, Kane, and McHenry counties, trips to and from these locations make up only a small part of the corridor's total daily trips. In fact, south suburban Cook County has more auto trips to and

[1] Expansion factors developed for the HHTS survey are suitable for use in an analysis of township travel flows. Respondents were grouped into township zones with similar socio-economic status and response rates. In some cases, township were disaggregated into smaller zones to develop factors based on more homogenous respondents.

from the corridor than McHenry County. Table 5-1 shows the distribution of trips into and out of the corridor on a daily basis. Exhibit 5-1 shows the desire lines that describe this distribution in visual form. Daily auto trips are shown in one direction only because the reverse flows are almost identical.

Table 5-1: 1990 Total Auto Trips To/From the Northwest Corridor

Origin/Destination	Trips from Corridor	Trips to Corridor	Total Trips	% of Total Trips
Chicago	147,700	149,100	296,800	13%
N. Side (excl. NW Corridor)	*114,000*	*118,200*	232,200	10%
S. Side	*20,300*	*19,300*	39,600	2%
CBD	*13,400*	*11,600*	25,000	1%
N. Suburban Cook (excl. NW Corridor)	223,100	223,300	446,400	20%
S./W. Suburban Cook	29,500	27,400	56,900	2%
DuPage County (excl. NW Corridor)	123,300	123,400	246,700	11%
Kane County	41,700	42,500	84,200	4%
Lake County	45,400	47,200	92,600	4%
McHenry County	16,100	17,300	33,400	1%
Will County	4,200	4,800	9,000	0%
Subtotal	**631,000**	**635,000**	**1,266,000**	**55%**
Internal to Corridor			**1,018,400**	**45%**
Total			**2,284,400**	**100%**

Data Source: 1990 CATS Household Travel Survey
Due to rounding, percentages may not add up to 100%

Table 5-2 summarizes the origin of auto trips by subarea. Almost 80 percent of trips originating in the corridor begin within the eastern two-thirds of the corridor. The central subarea accounts for the largest portion of total trips with approximately 45 percent of the total.

Table 5-2: 1990 Total Auto Trips by Subareas

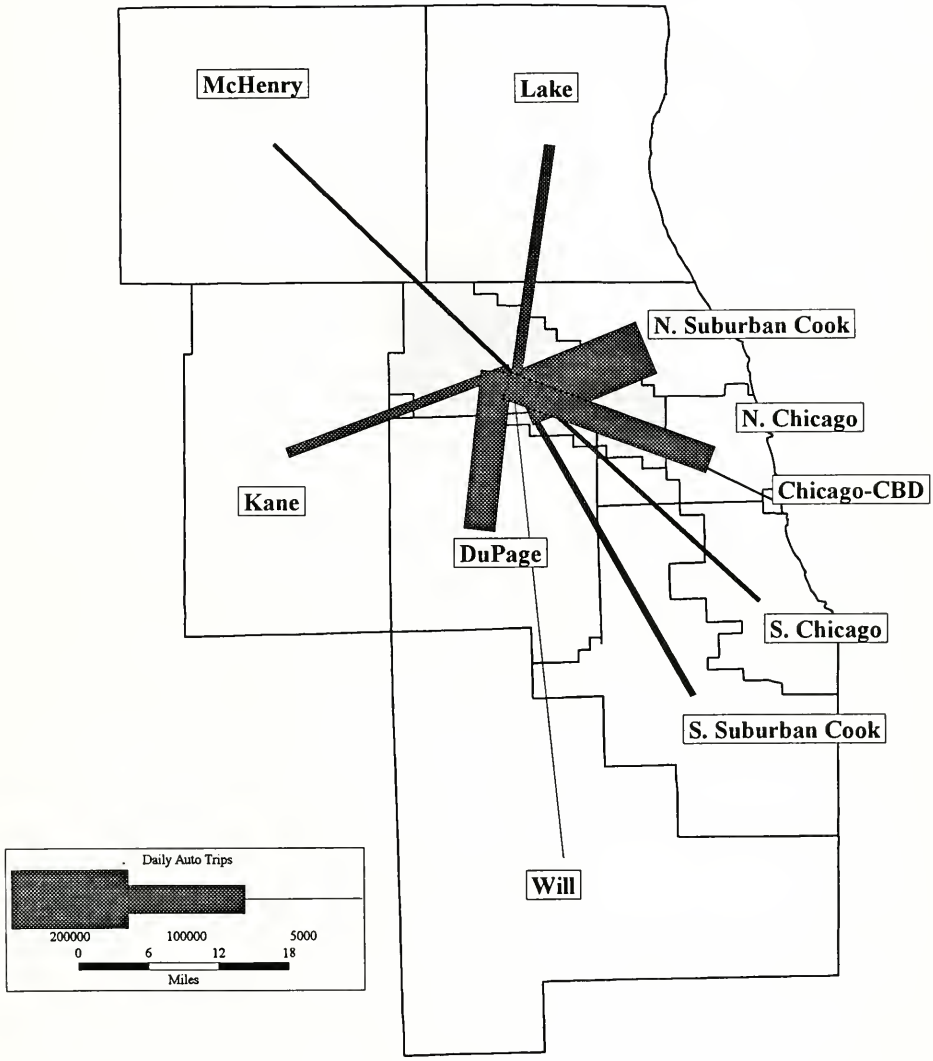
Subarea	Trip Origins by Subarea	% of Corridor Total
Eastern Subarea	563,300	34%
Central Subarea	738,000	45%
Western Subarea	355,400	21%
Total	1,656,700	100%

Data Source: 1990 CATS Household Travel Survey

Trip patterns vary among the three subareas in the corridor. As expected, the influence of the city of Chicago and suburban Cook County diminishes from east to west within the corridor, while connections to areas to the west increase. DuPage county shows a relatively strong influence, particularly in the central and western subareas. A large proportion of trips are internal to subareas, often representing close to one half of the daily total. Internal trips are shorter and will have less impact on regional travel. The central subarea shows the highest proportion of internal trips at 50 percent of the total.

Exhibit 5-1

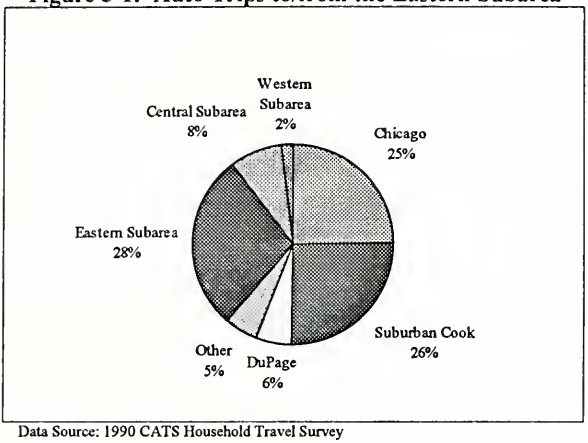
1990 Daily Auto Trips to the Northwest Corridor



Data Source: 1990 CATS Household Travel Survey
RTA System Planning Division, May 1998

The eastern subarea shows a strong connection to the city of Chicago and suburban Cook County. Together, these two locations account for just over 50 percent of the total trips beginning or ending within the eastern subarea as shown in Figure 5-1. Other locations with a relatively strong connection to the eastern subarea include the central subarea which represents 8 percent of daily trips and DuPage County with 6 percent.

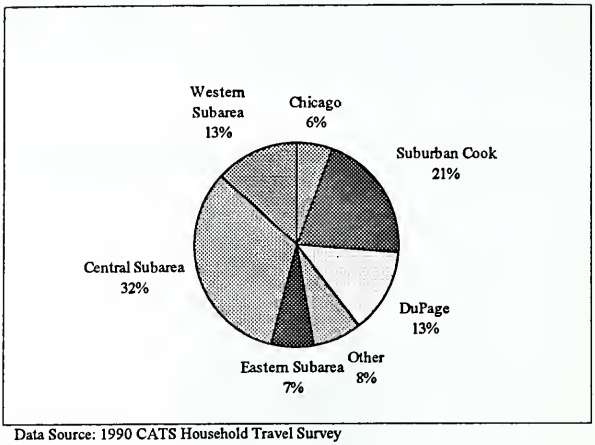
Figure 5-1: Auto Trips to/from the Eastern Subarea



Data Source: 1990 CATS Household Travel Survey

Trip patterns into and out of the central subarea show a more diverse geographic mix of origins and destinations and origins (see Figure 5-2). About one-third of trips are internal to the subarea. Other areas with a strong connection include suburban Cook with 21 percent of daily trips, the western subarea with 13 percent, and DuPage County also with 13 percent. The central subarea shows a less dramatic connection to the city of Chicago with only 6 percent of total auto trips.

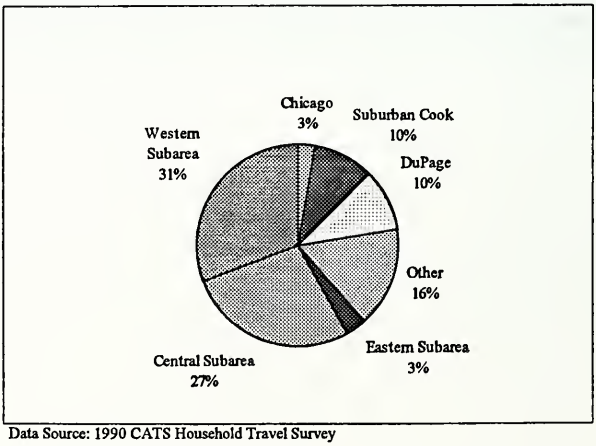
Figure 5-2: Auto Trips to/from the Central Subarea



Data Source: 1990 CATS Household Travel Survey

The western subarea shows a much different pattern of tripmaking as indicated in Figure 5-3. Much like the central and eastern subareas, almost one-third of daily trips are internal to the subarea. Another 27 percent have a connection to the central subarea. Unlike the central and eastern subarea, many more trips in this subarea have connections to other locations to the west, including Kane County and McHenry County. The western subarea shows the weakest connection to the city of Chicago which accounts for only 3 percent of daily trips and suburban Cook with 10 percent. Similar to the central subarea, 10 percent of trips have a connection to DuPage County.

Figure 5-3: Auto Trips to/from the Western Subarea



Data Source: 1990 CATS Household Travel Survey

5.2 Characteristics of Auto Trips

The remainder of this chapter analyzes the 1990 CATS HHTS to examine the characteristics of auto trips in the northwest corridor. Specific issues addressed in this analysis include trip purpose, trip distribution by time of day, travel time, and vehicle occupancy. It is important to note that the data analyzed for this report includes only trips made by automobile. Transit trips will be analyzed using other data sources. In contrast to the first part of this chapter, this analysis will evaluate survey results without weighting responses.

This analysis provides detail on daily travel patterns in the corridor as well as information for the three peak periods of morning (6-8 a.m.), midday (11a.m.-1p.m.), and evening (4-6 p.m.). Peak periods are based on the distribution of trips within the corridor which, in general, follow regional patterns. The only exception is the morning peak which on average occurs in the corridor from 6-8 a.m. compared to 7-9 a.m. for the region. Much of the analysis focuses on differences between trip patterns in the northwest corridor as compared to the region. Within the corridor, trips are further defined by three categories:

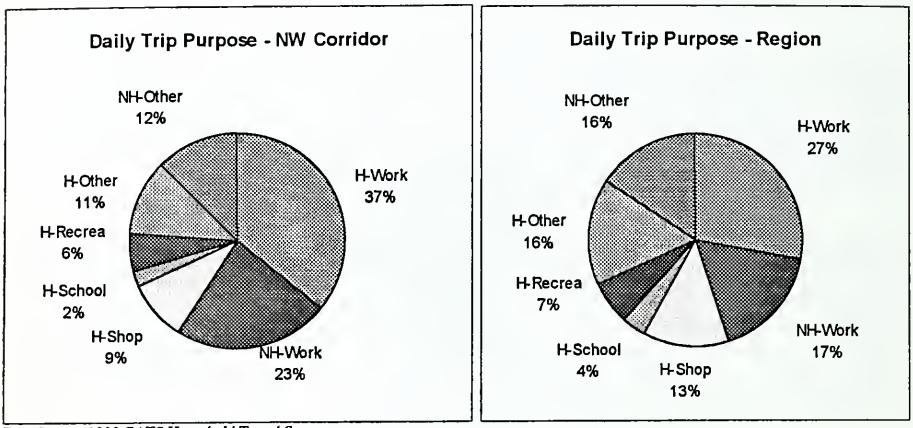
1) Entering – trips beginning outside the northwest corridor and ending within the corridor;
2) Exiting – trips beginning within the northwest corridor and ending outside the corridor; and
3) Internal – trips beginning and ending within the corridor's boundaries.

5.2.1 Trip Purposes

Commuting trips account for a large portion of daily trips in the corridor. This trip type is particularly common during the morning and evening peaks. Figure 5-4 through Figure 5-7 detail trips by category for the northwest corridor and the region. Trip purposes evaluated for this study are classified in one of the seven following categories:

1. *Home to Work* – Includes all trips between a person's residence and workplace;
2. *Non-Home Based Work* – Includes all trips between a person's workplace and a location other than home;
3. *Home to Shopping* – Includes all trips between a person's residence and shopping activities;
4. *Home to School* – Includes all trips between a person's residence and school;
5. *Home to Recreation* – Includes all trips between a person's residence and recreation activity;
6. *Home to Other* – Includes all other trips with an origin or destination at a person's residence; and
7. *Non-Home Based Other* – Includes all trips not connected to a person's residence or workplace. Examples might include a trip between a restaurant and dry cleaners.

Figure 5-4: Daily Trip Purpose Comparison

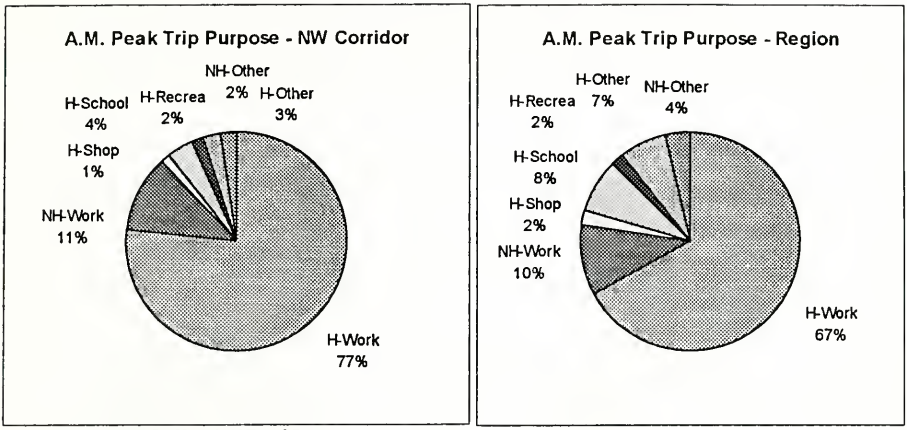


Data Source: 1990 CATS Household Travel Survey

Approximately 60 percent of trips in the northwest corridor are for work purposes, for travel to/from home or another location to/from work (see Figure 5-4). This proportion exceeds the regional average of 44 percent. Other significant trip types in the corridor include home to other, non-home based other and home to shopping trips, each accounting for around 10 percent of trips. Despite several regional shopping centers in the corridor, the proportion of home to shopping trips is below the regional average.

During the morning peak, as indicated in Figure 5-5, a higher proportion of work trips are made in the corridor than in the region. Almost 90 percent of all trips in the northwest corridor made during the morning peak fall within the home to work or non-home based work categories. Other trip types make up less than 5 percent of trips during this period.

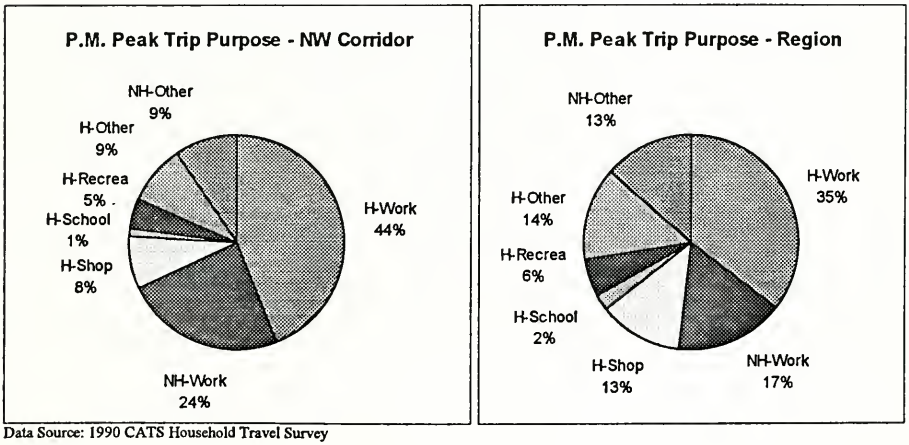
Figure 5-5: A.M. Peak Trips Purpose Comparison



Data Source: 1990 CATS Household Travel Survey

During the evening peak, as indicated in Figure 5-6, work trips again make up a large proportion of the corridor's trips. In total, approximately 68 percent of trips have a connection to work compared to 52 percent for the region. In contrast to the morning peak, a relatively high proportion of trips are non-home based work trips at 24 percent of the total. This proportion is related to persons making other stops between their work place and home. Examples might include running errands after work. The different distribution in trip types during the evening peak is consistent with regional patterns of travel. All of the other trips types in the corridor account for less than 10 percent of travel during the evening peak.

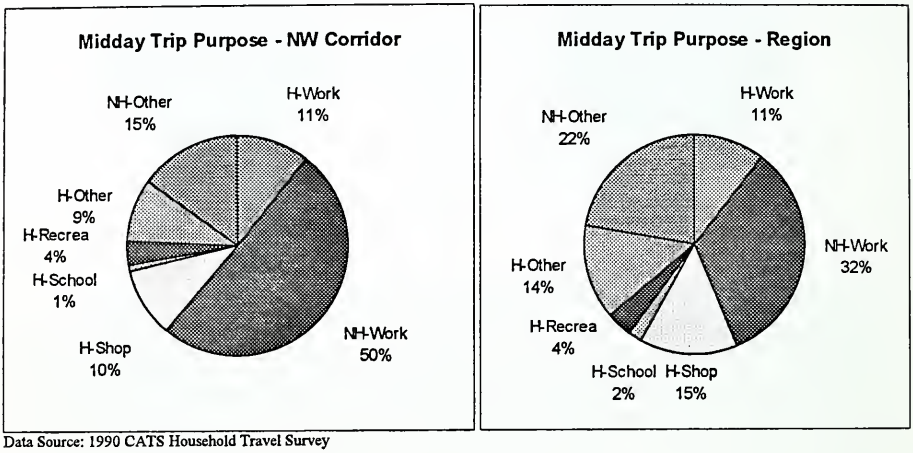
Figure 5-6: P.M. Peak Trip Purpose Comparison



Data Source: 1990 CATS Household Travel Survey

The predominant trip type during the midday peak is the non-home based work trip as seen in Figure 5-7. Home to work and home to shopping trips both account for 10 percent or more trips during this period. The corridor shows a much higher proportion of non-home based work trips during the midday at 50 percent compared to just 32 percent for the region. Examples of this trip type include travel to lunch or shopping locations from a work site.

Figure 5-7: Midday Trip Purpose Comparison

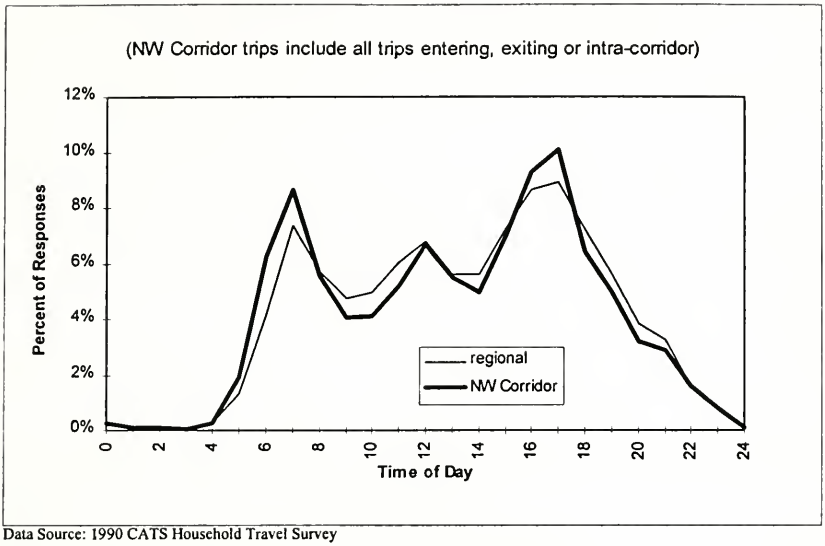


Data Source: 1990 CATS Household Travel Survey

5.2.2 Trip Distribution by Time of Day

Peaking is a key issue in the northwest corridor with the corridor showing slightly higher morning and evening peaks than in the region. As indicated in Figure 5-8, the corridor shows a general distribution of trips by time of day similar to that of the region as a whole, with peaks in the morning, midday, and evening. The corridor does, however, have an earlier and more intense morning peak. Explanations for this difference in departure times might include longer travel distances, higher levels of congestion and longer travel times which require earlier departures or a higher concentration of industrial employment with earlier start times. Consistent with the region, the morning peak is shorter in duration and less severe than the evening peak. The corridor also shows a slightly more intense evening peak than the region. During the evening, the proportion of daily trips occurring during the two highest volume hours is greater than for the region while the two shoulder peak hours are slightly lower than the region. The result is a more pronounced and intense peak during the evening period.

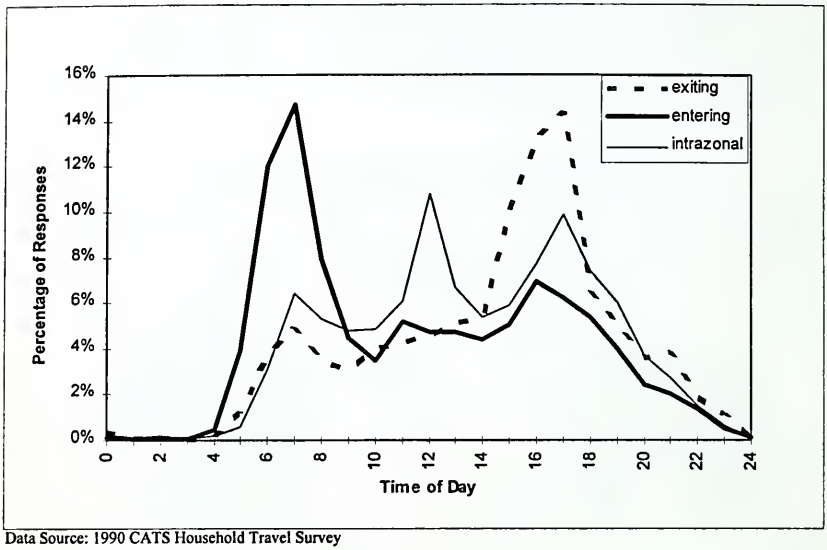
Figure 5-8: Comparison of Trip Distribution by Time of Day



Data Source: 1990 CATS Household Travel Survey

Trip distribution by time of day is further examined by comparing entering, exiting and intra-corridor trips as shown in Figure 5-9. Trips headed into the corridor peak during the morning while trips exiting the corridor show a complementary peak in the evening. Although the corridor contains a mix of residential and commercial development, a high concentration of employment likely contributes to this inbound orientation during the morning peak. The high proportion of home to work trips during the morning peak together with the large number of trips occurring during this period indicates the significance of commuting into and out of the corridor during the morning peak. The substantial difference between entering into and exiting from the corridor during the morning peak is consistent with an influx of workers into the corridor. For trips occurring entirely within the study area boundaries, the highest peak occurs during the midday, with smaller peaks in the morning and evening. This pattern is consistent with some commuting within the corridor's boundaries and employees in the corridor making midday trips.

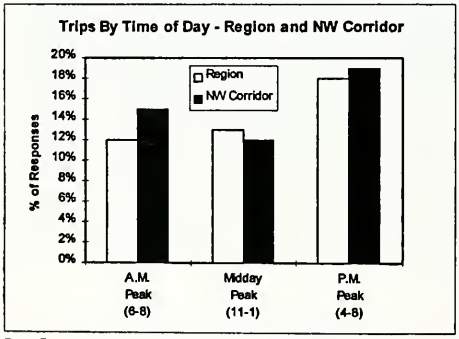
Figure 5-9: Trip Distribution by Time of Day Within the Northwest Corridor

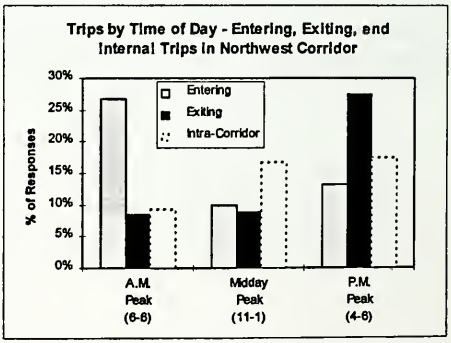


Data Source: 1990 CATS Household Travel Survey

As indicated in Figure 5-10, a higher proportion of daily trips in the corridor occur during the morning and evening peaks than on average for the region. The corridor also shows a slightly different pattern of tripmaking during the day than the region. The highest proportion of trips for the region occurs during the evening peak, followed by the midday, and finally, the morning. Within the corridor, the highest proportion of trips also occurs during the evening peak. In contrast to the region, the morning peak follows with the second highest proportion of trips.

Figure 5-10: Number of Trips by Time of Day





Data Source: 1990 CATS Household Travel Survey

The distribution of trips by time of day also shows a clear pattern of commuting into the corridor. The morning peak accounts for the largest proportion of daily trips entering the corridor, followed by the evening peak. The greatest proportion of trips exiting the corridor occurs during the evening peak, followed by the midday and finally, the morning peak. Both of these patterns are likely the result of a large number of inbound commuters in the morning who exit the corridor in the evening. The highest proportion of trips with an origin and destination within the corridor occurs during the evening, followed by the midday. The midday peak accounts for the second largest proportion of daily trips, despite a slightly higher peak hour. The midday peak for internal trips is shorter in duration and more intense than the evening peak.

5.2.3 Travel Time

Travel times in the northwest corridor exceed the regional average as shown in Table 5-3. The average daily travel times for trips with an origin and/or destination in the study area exceed the regional average by more than 30 percent. Preliminary analysis shows congestion as well as longer travel distance contribute to the difference. The average travel time for trips beginning and/or ending in the corridor is 28 minutes compared to just 21 minutes for the region. During the morning, evening, and midday peaks, travel times in the study area are consistently higher than the regional average. Travel times are highest for trips entering the corridor during the morning peak and for trips exiting the corridor during the evening peak. This data suggests that persons who enter the study area for work during traditional working hours experience higher travel times than those who live in the corridor and commute out for employment. During the midday, entering and exiting trips show a similar travel time.

Table 5-3: 1990 Mean Auto Travel Time In Minutes

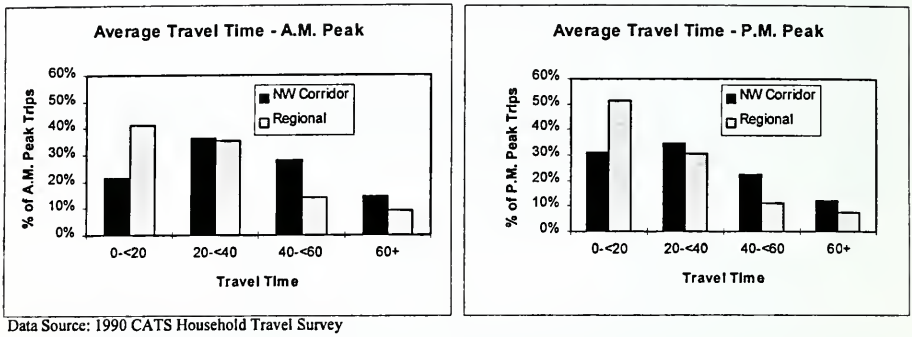
	Region	Northwest Corridor				Regional Comparison (% Difference)			
		Total	*Intra*	*Exiting*	*Entering*	*Total*	*Intra*	*Exiting*	*Entering*
A.M. Peak	27	36	19	38	41	33%	-30%	41%	52%
P.M. Peak	24	32	18	40	33	33%	-25%	67%	38%
Midday	17	21	13	29	28	24%	-24%	71%	65%
Daily	21	28	15	35	34	33%	-29%	67%	62%

Data Source: 1990 CATS Household Travel Survey

Consistent with higher than average travel times, the proportion of trips in the corridor lasting more than 40 minutes is significantly higher than for the region. More than 25 percent of trips with an origin and/or destination in the corridor take more than 40 minutes compared to just 13 percent of those in the region. During the morning peak, this difference is even more pronounced with 42 percent of corridor trips exceeding 40 minutes compared to just 24 percent for the region. During the evening peak, the gap remains, with 35 percent of corridor

trips taking longer than 40 minutes compared to 18 percent regionwide. This information is displayed in Figure 5-11.

Figure 5-11: Mean Travel Time Comparison



Data Source: 1990 CATS Household Travel Survey

5.3 Summary

Data from the 1990 CATS Household Travel Survey (HHTS) provides a solid picture of travel patterns in the northwest corridor. Travel to and from the northwest corridor shows a strong connection to areas to the south and east of the corridor. Connections are less significant to the west and north. The eastern two-thirds of the study area account for most trips.

This corridor is characterized by notable morning and evening peaks, a large number of commuter trips, and longer travel times than those in the region. The peak periods in the corridor bear a significant proportion of total corridor trips. The morning peak is shorter in duration than the evening peak with more trips headed into the corridor than out. The vast majority of trips conducted during the morning peak are by persons heading to or from work. The evening peak is longer in duration and more severe, with more trips headed out of the corridor than into the corridor. Almost 70 percent of these trips are conducted by persons headed to or from work.

Some significant findings based on the 1990 CATS survey include:

- Almost 2.3 million auto trips begin or end within the boundaries of the study area on an average weekday, 15 percent of the total for the region;
- Work related trips account for a larger proportion of daily trips in the corridor than for the region (60 percent vs. 44 percent);
- Work related trips make up the largest proportion of trips during both the morning and evening peak periods;
- The corridor has more significant morning and evening peaks than does the region;

- The corridor evening peak is longer in duration and more severe than the morning peak;
- The highest peak for trips entering the corridor occurs in the morning;
- The highest peak for trips leaving the corridor occurs in the evening;
- The highest peak for trips occurring within the corridor occurs during the midday;
- Travel times in the corridor exceed the average for the region;
- Travel times during the morning peak are higher for trips entering the corridor than for those leaving the corridor;
- Travel times during the evening peak are higher for trips leaving the corridor than for those entering the corridor; and
- Congestion, as well as longer travel distances, contribute to the mean corridor travel times being higher than their regional counterparts.

6. Travel on the Tollway and Selected Arterials

The Illinois State Toll Highway Authority (ISTHA) conducted several surveys which provide detailed information on users of the roadway system in the northwest corridor. In contrast to other data sources, this information is route specific. It captures only those persons who travel through survey station locations on the tollway or selected arterials. As a result, this survey information is likely to be biased toward persons making longer than average distance trips who are more likely to use the tollway or regional arterials than local roadways. The first section of this chapter provides background information on the survey methodology and coverage to provide a context for the tollway data. The second section profiles the users of the tollway and arterials in the northwest corridor including information on the origins and destinations of trips, trip purposes, the frequency of travel, vehicle occupancy, vehicle type, and the time of day of travel.

6.1 *Survey Stations and Sample Size*

ISTHA conducted two travel surveys in 1992 and 1994 to collect information on facility-based travel characteristics. More than 250,000 mailback questionnaires were distributed to passing motorists from 18 survey stations located in or near the northwest corridor. Ten survey stations were located on tollway plazas and eight on arterials. All of the arterial locations were located west of Illinois Route 83. These arterial survey stations were designated for the express purpose of studying the proposed East Elgin Expressway Extension. The tollway conducted surveys on weekdays for a continuous 12-hour period from 7 a.m. to 7 p.m. The collection of surveys during these 12 hours only may bias the sample toward persons traveling for work purposes. Weekend surveys were also conducted at eight tollway plaza locations. Exhibit 6-1 shows the location of these survey stations. More than 56,187 survey responses were received and coded. This response rate represented 11 percent of total passing traffic and 18 percent of surveys distributed. A higher response rate was observed from arterial users, with total returns representing 13 percent of passing traffic and 21 percent of surveys distributed. The large sample size is sufficient to examine travel patterns and characteristics in the corridor.

6.2 *Travel Characteristics*

6.2.1 Catchment Areas

The ISTHA survey data indicates that more than 71 percent of survey respondents on east-west arterials south of the Tollway had either an origin or destination within the northwest corridor (see Exhibit 6-2). Although arterial survey stations were located in the southern and eastern part of the corridor, trips passing through these stations had their origin or destination in diverse parts of the corridor. However, only a few of those surveyed indicated trip origins or destinations in the far northwest part of the corridor which is consistent with the

concentration of conservation and vacant land in this part of the corridor. The survey data indicates that east-west arterials carry primarily local trips.

The catchment area for the Northwest Tollway users is more extensive than that of the arterial users as indicated in Exhibit 6-3. In contrast to the arterial users catchment area, it is much broader, with a general orientation of trip origins and destinations close to one of the regional expressways. Almost 60 percent of tollway users indicated an origin or destination in Cook or Lake counties east of the Tri-State Tollway. A total of 30 percent indicated an origin or destination from the corridor to the west.

6.2.2 Trip Purposes

The tollway survey data indicates the overwhelming significance of work trips on both the Northwest Tollway and surveyed arterials during the survey hours of 7 a.m. to 7 p.m. Among weekday daytime users, approximately 82 percent of trips made on the Northwest Tollway were for work related purposes as indicated in Table 6-1. The survey reveals a higher proportion of work related trips eastbound and a relatively higher proportion of recreational/social trips westbound. Out-of-state company related business trips account for a greater proportion of westbound trips at the Elgin Plaza which is at the study area's western boundary.

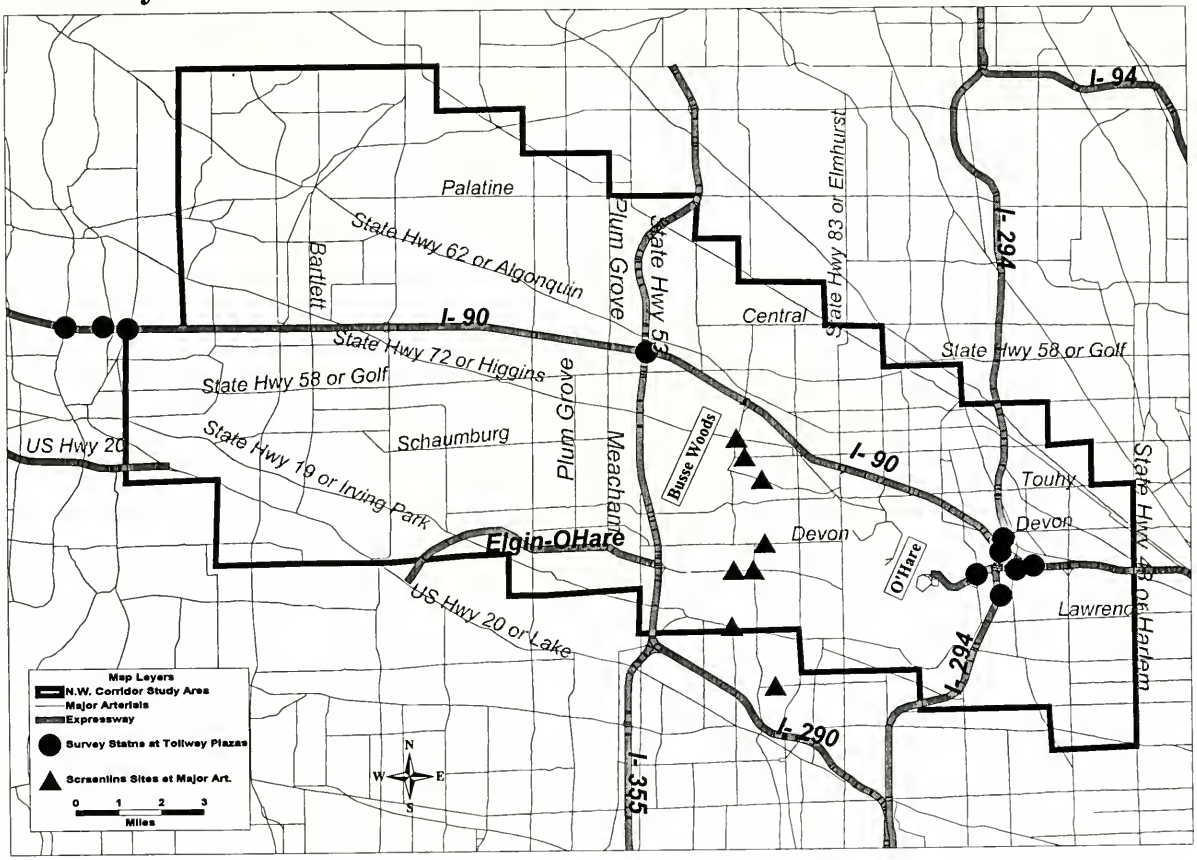
Table 6-1: Northwest Tollway Users' Trip Purposes

	WORK RELATED TRIPS								
	Total Work Related Trips	Journey to/from work	In-State Company Business	Inter-State Company Business	Personal Business	School	Shop	Rec/ Social	Total
NORTHWEST TOLLWAY – WEEKDAY									
Westbound at Devon (Pl. 17)	81.5	60.2	17.5	3.8	8.7	1.4	2.5	5.9	100%
Eastbound Near Airport	87.6	64.1	17.1	6.4	8.2	1.1	0.4	2.8	100%
Westbound at I-290/IL-53 (Pl. 15)	79.9	54.9	18.6	6.4	9.2	1.0	3.0	6.8	100%
Westbound at Elgin (Pl. 9)	78.7	55.2	13.9	9.6	10.6	2.1	1.1	7.5	100%
Eastbound at IL-31/25 (Pl. 11/13)	80.6	61.3	16.6	2.8	10.6	1.9	3.5	3.5	100%
Total Westbound	**80.6**	**58.1**	**17.1**	**5.4**	**9.1**	**1.4**	**2.4**	**6.3**	**100%**
Total Eastbound	**84.8**	**62.9**	**16.9**	**4.9**	**9.1**	**1.4**	**1.6**	**3.0**	**100%**
Total Northwest Tollway	**81.7**	**59.3**	**17.1**	**5.3**	**9.1**	**1.4**	**2.2**	**5.5**	**100%**
NORTHWEST TOLLWAY – WEEKEND									
Westbound at Devon (Pl. 17)	25.4	17.3	4.8	3.4	24.8	0.7	6.3	42.7	100%
Eastbound Near Airport	30.6	19.8	6.5	4.2	26.0	1.1	5.9	36.3	100%
Westbound at I-290/IL-53 (Pl. 15)	37.5	27.0	6.9	3.6	20.6	2.4	5.9	33.6	100%
Westbound at Elgin (Pl. 9)	25.0	14.1	3.9	6.9	24.8	2.3	4.3	43.7	100%
Eastbound at IL-31/25 (Pl. 11/13)	No weekend survey was conducted								
Total Westbound	**28.3**	**19.0**	**5.1**	**4.1**	**23.8**	**1.4**	**5.8**	**40.7**	**100%**
Total Eastbound	**30.6**	**19.8**	**6.6**	**4.2**	**26.0**	**1.1**	**5.9**	**36.3**	**100%**
Total Northwest Tollway	**28.4**	**19.1**	**6.2**	**4.1**	**23.9**	**1.4**	**5.8**	**40.4**	**100%**

Data Source: Illinois State Highway Toll Authority, 1992 & 1994 Surveys
Due to rounding, percentages may not add up to 100%

Exhibit 6-1

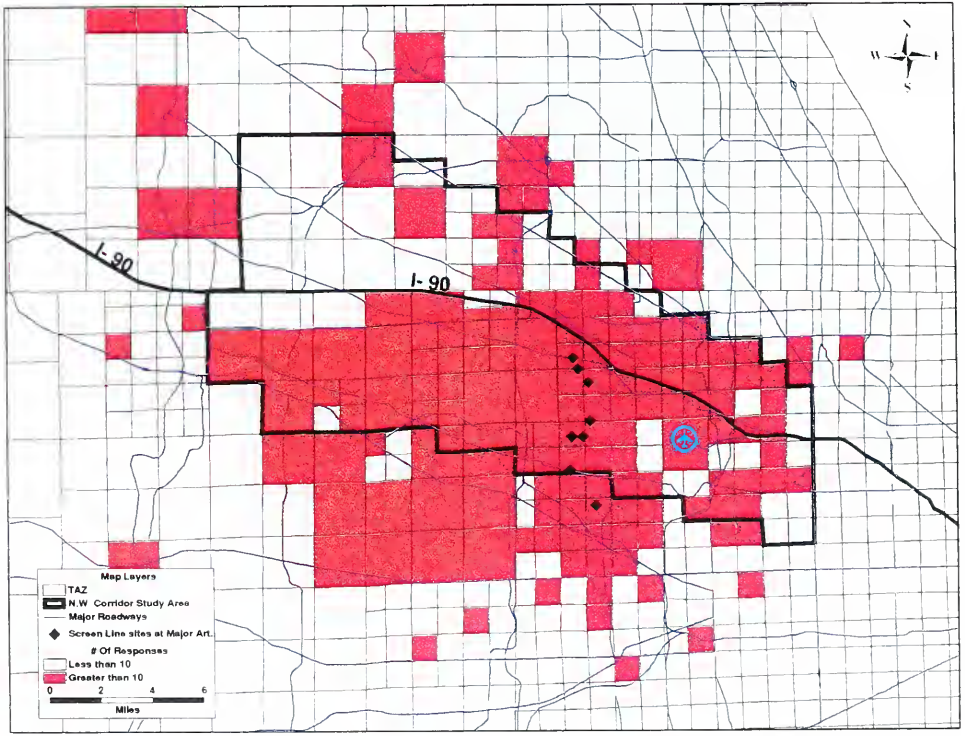
Survey Station Locations and Screenline Sites for ISTHA Surveys



RTA System Planning Division, May 1998

Exhibit 6-2

Catchment Areas for Selected East-West Arterials

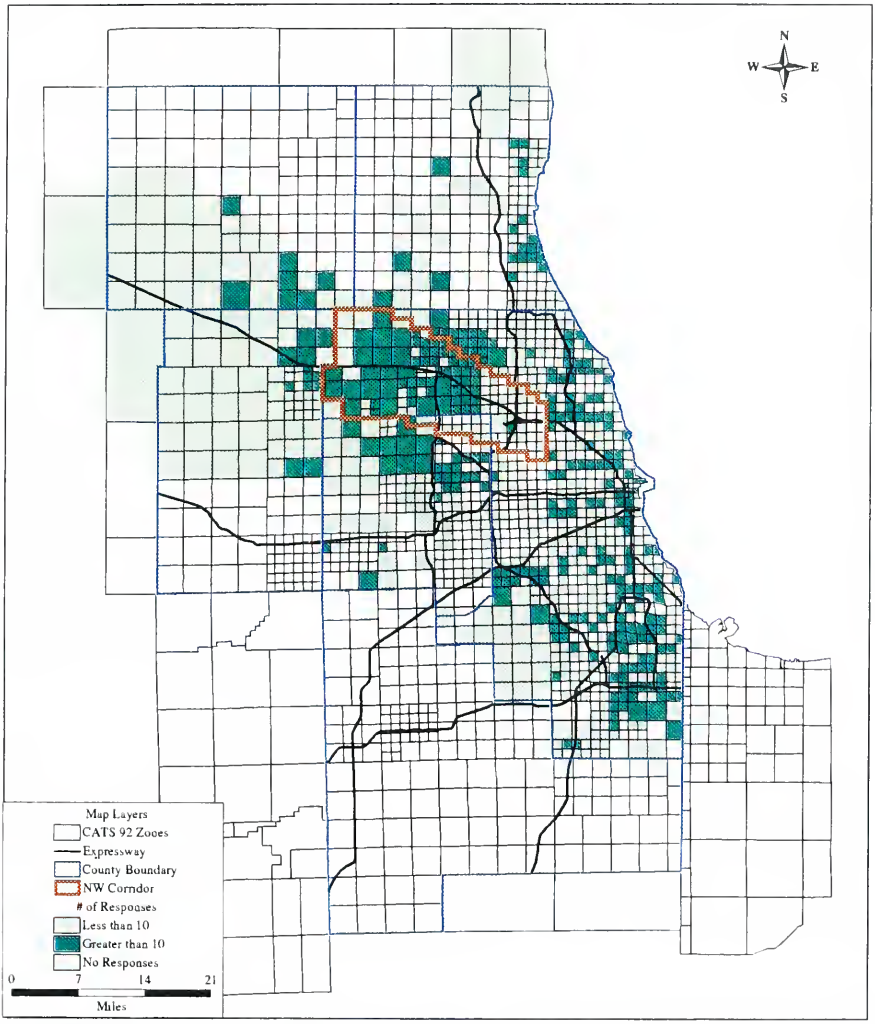


Data Source: Tollway 1994 Survey

RTA System Planning Division, May 1998

Exhibit 6-3

Catchment Areas for Northwest Tollway Weekday Users



Data Sources: Tollway 1992 and 1994 Surveys

RTA System Planning Division, May 1998

ISTHA also provided survey data on weekend trips. More than 40 percent of surveyed trips were for a recreational/social purpose and 24 percent for personal business. Work related trips represented only 28 percent of the total compared to 82 percent on weekdays. Weekend commuter trips were more common (more than 27 percent) on the westbound Northwest Tollway at I-290/IL-53 (Plaza 15) near many retail and service jobs at Woodfield Mall.

A comparison of trip purposes at tollway plazas near O'Hare Airport with the arterial screenline stations west of the O'Hare airport is presented in Table 6-2. The difference between tollway and non-tollway users is not significant with the exception of a slightly higher percentage of work related trips on the Northwest Tollway. Westbound arterials also show a relatively higher proportion of shopping and personal business trips while the westbound tollway shows a higher proportion of recreational/social trips.

Table 6-2: Comparison between Tollway and Non-Tollway Users

	WORK RELATED TRIPS								
	Total Work Related Trips	Journey to/from work	In-State Company Business	Inter-State Company Business	Personal Business	School	Shop ping	Rec/ Social	Total
NORTHWEST TOLLWAY									
Westbound at Devon (Pl. 17)	81.5	60.2	17.5	3.8	8.7	1.4	2.5	5.9	100%
Eastbound Near Airport	87.6	64.1	17.1	6.4	8.2	1.1	0.4	2.8	100%
Total Tollway Near Airport	83.0	61.1	17.4	4.4	8.6	1.4	2.0	5.1	100%
ARTERIALS*									
Westbound (Stations 54-60)	75.5	54.3	19.3	2.0	12.2	2.4	5.4	4.4	100%
Eastbound (Station 48)	88.8	67.4	19.1	2.3	6.4	0.8	1.4	2.5	100%
Total East-West Arterials	79.2	57.9	19.2	2.1	10.6	2.0	4.3	3.9	100%

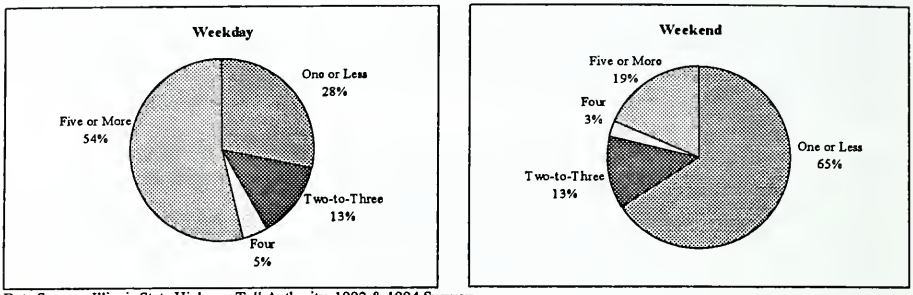
Data Source: Illinois State Highway Toll Authority, 1992 & 1994 Surveys
Due to rounding, percentages may not add up to 100%

6.2.3 Trip Frequency

Trip frequency is high among weekday tollway users, and relatively low among weekend users. Over half of weekday users surveyed had used the tollway facility five or more times in the previous week as indicated in Figure 6-1. Only 19 percent of weekend users had used the facility more than five times in the previous week. The proportion of occasional riders, defined as those who traveled one or fewer times in the previous week, is much higher among weekend users.

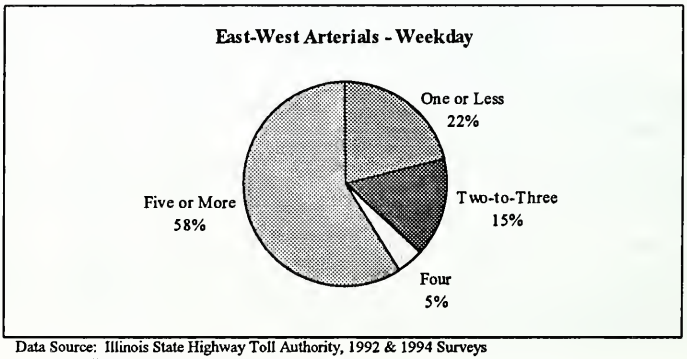
The frequency of use is also high on surveyed arterials as depicted in Figure 6-2. The arterials show a similar consistency of use with 58 percent indicating that they had used the facility five or more times in the previous week. Occasional users represent just 22 percent of the total.

Figure 6-1: Tollway Users Trip Frequency Distribution



Data Source: Illinois State Highway Toll Authority, 1992 & 1994 Surveys

Figure 6-2: Non-Tollway Users Trip Frequency Distribution



Data Source: Illinois State Highway Toll Authority, 1992 & 1994 Surveys
Due to rounding, percentages may not add up to 100%

Frequency of use is highest among persons who are traveling to or from work on both the tollway and adjacent arterials. Table 6-3 indicates the frequency of facility use by trip purpose. Among Northwest Tollway weekday users, 83 percent of respondents indicating a journey-to-work trip purpose had used the same facility five or more times during the previous week. No other trip purpose shows the same degree of frequency in use. The second largest percentage of frequent use is among school trips, where 30 percent of respondents reported using the facility five or more times in the previous week. Other trip types show a high proportion of occasional users, ranging from 52 percent for those on in-state company business trips to 83 percent among those making recreational/social trips.

Table 6-3: Trip Frequency by Trip Purpose

	NUMBER OF TRIPS PER WEEK PER DIRECTION			
	One or Less (Occasional Users)	Two-four	Five or More (Frequent Users)	Average Trips per Week
Northwest Tollway – Weekday				
Journey to/from Work	4%	13%	83%	4.7
In-State Company Business	52%	29%	19%	2.2
Inter-State Company Business	64%	26%	10%	1.7
Personal Business	74%	22%	4%	1.3
School	36%	35%	30%	2.8
Shopping	82%	16%	3%	1.0
Recreational/Social	83%	14%	4%	1.0
Total	**28%**	**18%**	**54%**	**3.5**
Northwest Tollway – Weekend				
Journey to/from Work	10%	19%	71%	4.5
In-State Company Business	43%	23%	34%	2.9
Inter-State Company Business	67%	20%	13%	1.6
Personal Business	74%	19%	7%	1.3
School	77%	17%	6%	1.3
Shopping	89%	8%	3%	0.9
Recreational/Social	85%	11%	3%	1.0
Total	**66%**	**16%**	**19%**	**1.9**
East-West Arterials – Weekday				
Journey to/from Work	4%	11%	84%	4.8
In-State Company Business	40%	31%	29%	2.7
Inter-State Company Business	48%	27%	24%	2.4
Personal Business	59%	27%	15%	1.9
School	15%	25%	59%	4.1
Shopping	45%	40%	16%	2.2
Recreational/Social	57%	30%	13%	1.9
Total	**22%**	**20%**	**59%**	**3.8**

Data Source: Illinois State Highway Toll Authority, 1992 & 1994 Surveys
Due to rounding, percentages may not add up to 100%

Survey data for weekend users shows a similar frequency of tripmaking by trip purposes. Those making work trips show the highest frequency of use while other trip types show a high proportion of occasional users. The most noticeable difference between weekend and weekday trips is a higher proportion of frequent users among those indicating an in-state work related business trips purpose on weekends. With the exception of in-state work related trips, all other trip purposes show a higher proportion of occasional users on weekends.

6.2.4 Vehicle Occupancy

The tollway data shows low vehicle occupancies in the corridor, particularly for journey to work trips. This finding is consistent with the 1990 CATS Household Travel Survey. Table 6-4 indicates vehicle occupancy in the corridor. More than 81 percent of weekday tollway users indicated that they were driving alone. Eastbound trips show a slightly higher proportion of drive-alone trips, perhaps related to higher proportion of journey to work trips in the eastbound direction. Multiple occupancy trips are much more common on weekends, where less than half of trips are drive-alone.

Table 6-4: Distribution of Vehicle Occupancy

Facility by Direction	Percent of Drive Alone	Percent of 2-Person Carpool	Percent of 3-Person Carpool	Percent of 4-Person or More Carpool	Average Vehicle Occupancy
NORTHWEST TOLLWAY – WEEKDAY	81.7	12.7	3.0	2.7	1.29
-- Westbound	80.8	13.2	3.1	2.9	1.30
-- Eastbound	84.1	11.2	2.7	2.0	1.24
NORTHWEST TOLLWAY – WEEKEND	45.7	33.4	10.5	10.5	1.91
-- Westbound	45.7	33.5	10.4	10.5	1.91
-- Eastbound	46.0	32.2	10.9	10.9	1.92
ARTERIALS – WEEKDAY	85.1	11.4	2.1	1.4	1.21
-- Westbound	84.1	12.0	2.2	1.7	1.23
-- Eastbound	87.6	9.7	1.8	0.9	1.16

Data Source: Illinois State Highway Toll Authority, 1992 & 1994 Surveys
Due to rounding, percentages may not add up to 100%

Trip purpose plays a significant role in vehicle occupancy, with the highest drive-alone rates occurring among journey to work trips. As indicated in Table 6-5, just 9 percent of weekday and 14 percent of weekend trips for work purposes are conducted in multiple occupant vehicles. School trips show the lowest drive alone rate on arterials, while shopping and recreational trips show the lowest drive alone rate among tollway users.

Table 6-5: Trip Purposes by Vehicle Occupancy

Northwest Tollway – Weekday	Distribution of Vehicle Occupancy				
	Percent Drive Alone	Percent 2-Person Carpool	Percent 3-Person Carpool	Percent 4 or More Person Carpool	Average Occupancy
Journey to/from Work	92	7	1	1	1.11
Business Related	83	12	2	3	1.26
School	74	12	7	8	1.52
Personal Business	54	32	8	6	1.69
Shopping/Recreational/Social	34	37	15	15	2.21
Total	**82**	**13**	**3**	**3**	**1.28**
Northwest Tollway – Weekend					
Journey to/from Work	87	10	2	2	1.20
Business Related Trips	59	26	8	7	1.69
School	50	26	8	16	1.99
Personal Business	39	38	13	10	1.98
Shopping/Recreational/Social	29	42	13	15	2.22
Total	**46**	**33**	**11**	**10**	**1.90**
East-West Arterials – Weekday					
Journey to/from Work	91	7	1	1	1.11
Business Related Trips	89	8	2	1	1.15
School	41	24	17	18	2.33
Personal Business	72	21	4	2	1.37
Shopping/Recreational/Social	58	31	6	5	1.67
Total	**85**	**12**	**2**	**1**	**1.20**

Data Source: Illinois State Highway Toll Authority, 1992 & 1994 Surveys
Due to rounding, percentages may not add up to 100%

6.2.5 Vehicle Classification

Automobiles represent the vast majority of traffic on both the tollway and surveyed arterials. The tollway contains a higher proportion of truck traffic than arterials, with the highest proportion on weekends[1]. The three vehicle classes included in the survey include passenger cars, light trucks, and heavy trucks. Passenger cars include those with trailers of one or two axles. Light trucks are defined as vehicles with two axles, six tires, or three axles. Heavy trucks include all vehicles with 4 to 6 axles. The vehicle mix among respondents using either the Northwest Tollway or east-west arterials is shown in Table 6-6. Over 90 percent of respondents were driving passenger cars. In the tollway and arterial survey data, heavy truck trips are found only on the tollway only, representing 3.5 percent of weekday and 2.2 percent of weekend trips. The westbound direction shows a higher proportion of commercial vehicles, especially at the western edge of the study area.

[1] It is likely that truck traffic increases as a proportion of traffic at night, a period not covered by this survey. For additional detail on commercial traffic with 24-hour information, see Chapter 9.

Table 6-6: Percent Distribution of Vehicle Classification

Highway Facility by Direction	Passenger Car	Light Truck	Heavy Truck	Total
NORTHWEST TOLLWAY – WEEKDAY	**90.9**	**5.6**	**3.5**	**100%**
Westbound at Devon (Plaza 17)	92.0	5.1	2.9	100%
Eastbound Near Airport	96.3	3.0	0.6	100%
Westbound at I-290/IL-53 (Plaza 15)	87.4	5.9	6.7	100%
Westbound at Elgin (Plaza 9)	81.9	12.2	5.9	100%
Eastbound at IL-31/25 (Plaza 11 & 13)	95.4	2.4	2.2	100%
Total Westbound	89.3	6.5	4.3	100%
Total Eastbound	95.9	2.8	1.3	100%
NORTHWEST TOLLWAY – WEEKEND	**90.2**	**7.6**	**2.2**	**100%**
Westbound at Devon (Plaza 17)	91.1	8.0	0.9	100%
Eastbound Near Airport	98.6	1.4	0.0	100%
Westbound at I-290/IL-53 (Plaza 15)	90.9	5.6	3.5	100%
Westbound at Elgin (Plaza 9)	83.1	11.6	5.3	100%
Eastbound at IL-31/25 (Plaza 11 & 13)	No weekend survey was conducted			
Total Westbound	89.5	8.1	2.4	100%
Total Eastbound	98.6	1.4	0.0	100%
EAST-WEST ARTERIALS – WEEKDAY	**95.1**	**4.9**	**0**	**100%**
Eastbound (Station 48)	94.5	5.5	0.0	100%
Westbound (Station 54-60)	95.3	4.7	0.0	100%

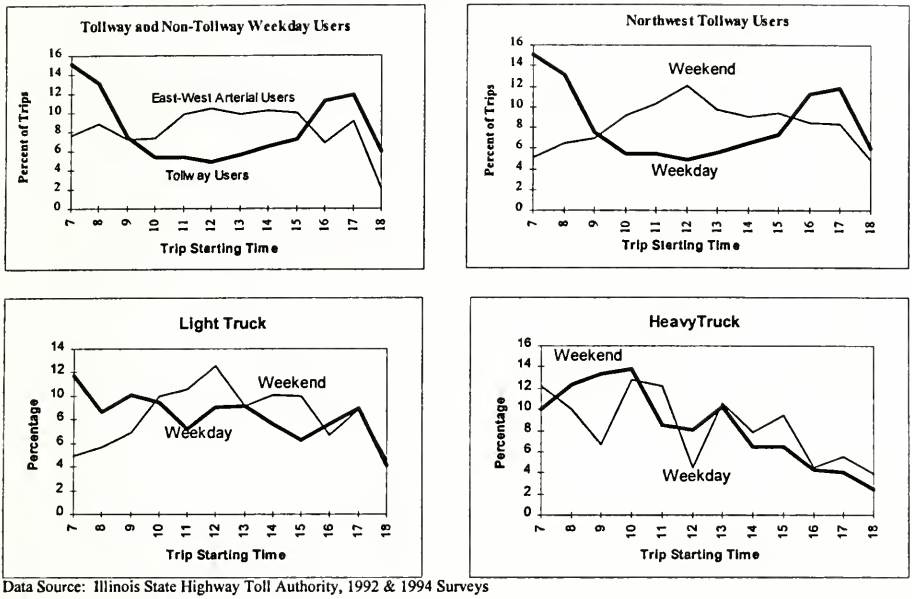
Data Source: Illinois State Highway Toll Authority, 1992 & 1994 Surveys
Due to rounding, percentages may not add up to 100%

6.2.6 Time of Day Variations

Traffic volumes on the tollway vary more widely by time of day than on surveyed arterials. Figure 6-3 depicts traffic by time of day for tollway users, non-tollway users and commercial vehicles. On weekdays, the tollway shows two peak periods, while the east-west arterials show less variation in traffic by time of day. Arterials do show some peaking during the midday from 11 a.m. to 3 p.m. when personal or shopping trips occur most often. On the tollway, weekend traffic peaks during the midday. The following graphs also indicate that the intensity of the peak on weekends is the same as the weekday evening peak. This pattern suggests that the midday between 11 a.m. and 1 p.m. on weekends may encounter the congestion problem.

Commercial vehicles show a much different pattern of travel by time of day. Commercial trips are more common earlier in the day, especially for heavy vehicles. No clear peak period of movement is indicated for light trucks, while a high proportion of heavy trucks make trips early in the day with a general decline into the evening.

Figure 6-3: Hourly Traffic Variations



Data Source: Illinois State Highway Toll Authority, 1992 & 1994 Surveys

6.3 Summary

The Illinois State Toll Highway Authority survey data indicates that although the Northwest Tollway is part of a national network of expressways, a large portion of trips in the corridor have a local or regional purpose. The data also indicates the overwhelming significance of work related trips during the weekdays on both the tollway and surveyed arterials.

According to the ISTHA survey data, the tollway market includes persons from a broad geographic area, with a high concentration of users who live close to other expressways in the region. The geographic coverage of arterial users is much smaller. Much of the travel on the tollway occurs during the morning and evening peaks. Many tollway users travel on the facility on a frequent basis, particularly among those who use the facility for work purposes. During the day on weekends, the predominant use of the tollway is for recreational and social trips. Users of the system on the weekend are much more likely to travel on the tollway only occasionally. Most persons traveling on the tollway are doing so in a single-occupancy automobile. Commercial vehicles make up only a small portion of the total volume, particularly in the eastern subarea.

Some significant findings based on the ISTHA survey data include:

- The vast majority of tollway users in the northwest corridor have an origin or destination within the region;
- More than 80 percent of weekday daytime tollway users are traveling for work related purposes;
- Almost 80 percent of adjacent weekday daytime arterial users are traveling for work related purposes;
- The majority of daytime weekday tollway users are frequent users of the system;
- Most daytime weekend users of the tollway are traveling for social/recreational purposes and use the system only occasionally;
- More than 80 percent of daytime weekday and 45 percent of daytime weekend tollway users are driving alone; and
- Tollway users are more likely to travel on the system during the morning and evening peaks than arterial users.

7. Existing Transit Service and Ridership Trends

This chapter details existing Metra Commuter Rail (Metra), Chicago Transit Authority (CTA) and Pace Suburban Bus (Pace) service in the corridor with information on the levels of service and trends in ridership. Particular attention is paid to the directional orientation of travel using the concepts of the traditional and reverse markets. The traditional market is defined as transit trips headed toward the city of Chicago in the morning and away from the city of Chicago in the evening, while the reverse market is defined as trips headed away from the city of Chicago in the morning and toward the city of Chicago in the evening. This chapter assesses the growth in transit use within these markets beginning with Metra, continuing with CTA rail and CTA bus, and finishing with Pace.

7.1 Metra Commuter Rail

7.1.1 Service

Metra service in the corridor includes the Milwaukee District-West (MD-W), the Union Pacific-Northwest (UP-NW) and the North Central Service (NCS). In total, 23 Metra stations are located within the study area boundary – 10 on the UP-NW, 11 on the MD-W, one on the NCS, and one shared by the NCS and MD-W. The MD-W and UP-NW are full service Metra lines with express and local trains during peak hours, midday service, and limited reverse peak service. The NCS serves primarily as a peak-period, peak directional service. Metra's service in the corridor is directed toward passengers headed to the Loop during the morning peak and outbound from the Loop in the evening.

As indicated in Table 7-1, service on all three lines is heavier during the morning peak in the inbound direction. Only a few "reverse commute" trains operate on the MD-W and UP-NW lines. Weekend service is less frequent on the MD-W and UP-NW and not available on the NCS.

Table 7-1: 1997 Metra Service and Ridership

	Inbound			Outbound			% Reverse
	Total	A.M.	P.M.	Total	A.M.	P.M.	Commuters
UP-NW							
Service Level (# of Trains)	31	17	3	32	5	16	
Line Ridership	17,133	14,355	755	17,072	759	13,488	4.4%
MD-W							
Service Level (# of Trains)	29	14	5	29	5	13	
Line Ridership	11,220	9,534	560	11,195	449	8,766	4.5%
NCS							
Service Level (# of Trains)	5	4	1	5	0	4	
Line Ridership	2,044	1,998	46	1,897	0	1,825	1.2%

Data Source: Metra

The UP-NW is a full service Metra line geared to the Loop bound commuter market. Inbound morning and outbound evening service is frequent with a combination of express and local trains. Off-peak service is limited to one train every one to two hours. The "reverse commute" market is served with five outbound trains during the morning peak and three inbound trains during the evening peak. The reverse commute market represents less than 5 percent of ridership on this line.

The MD-W provides a level of service similar to that of the UP-NW. The inbound morning and outbound evening service is frequent with a combination of local and express trains. Off-peak service is limited to approximately one train per hour. The "reverse commute" market is served with five outbound trains during the morning peak and five inbound trains during the evening peak. As with the UP-NW, this line is heavily used by passengers following the suburb to city commute, the reverse commute market representing less than 5 percent of trips.

The NCS is relatively new to the Metra system with service commencing in the summer of 1996. This line provides limited service and is geared almost exclusively to suburb to city commuters. In total, just five trains operate in each direction daily. Four of the inbound trains run during the morning peak, with a final run occurring during the evening peak. The outbound service includes one midday train and four trains during the evening peak. Weekend service is not available.

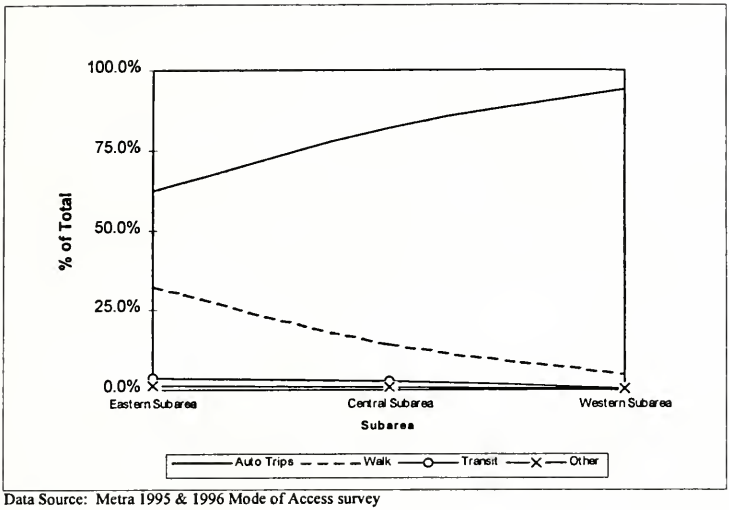
7.1.2 Mode of Access/Commuter Shed

The mode of access to Metra stations falls into four categories – auto, walk, transit and other. These modes are defined as follows:

- **Auto** – driving to the Metra station, getting dropped off, carpool passengers and carpool drivers;
- **Walk**;
- **Transit** – rapid transit or bus; or
- **Other** – bicycling, motorcycles, and taxis.

The mode of access of Metra passengers is summarized by each subarea in Figure 7-1 and Table 7-2. In the eastern subarea, the mode of access is dominated by auto trips and walking, with the latter accounting for one-third of all person trips to the stations. In the central subarea, the vast majority of passengers access the service by auto at 82 percent of the total, with walking representing 14 percent. In the western subarea, auto trips account for 94 percent of the total. The proportion of auto trips increases from east to west, while the walking share falls significantly. One of the likely reasons for the declining walking share in the west is the lower residential density in the central and western subareas.

Figure 7-1: 1995 Metra Mode of Access in the Three Subareas



Data Source: Metra 1995 & 1996 Mode of Access survey

Table 7-2: Subarea Level Comparison of Mode of Access

	Auto Trips	Walk	Transit	Other
Eastern Subarea	62.5%	32.6%	3.7%	1.2%
Central Subarea	82.1%	14.3%	2.6%	1.1%
Western Subarea	93.8%	4.9%	0.6%	0.7%

Data Source: Metra 1995 & 1996 Mode of Access Survey
Due to rounding, percentages may not add up to 100%

Given the dominance of auto access in the corridor, information on park and ride facilities in the corridor is examined further. Parking is available at all Metra stations in the corridor as shown in Exhibit 7-1. In total, more than 14,000 parking spaces are available at Metra stations in the corridor, an average of 600 spaces per station. The number of spaces varies significantly, however, ranging from just 30 spaces at the Mannheim station to more than 1,700 at the Schaumburg station. Stations with more than 1,000 spaces available include Roselle, Schaumburg, and Hanover Park on the Milwaukee District-West Line and Mount Prospect, Arlington Heights, Arlington Park, and Palatine on the Union Pacific - Northwest. On average, 85 percent of parking spaces in this corridor are used on weekdays.

In 1990, Metra conducted a license plate survey to determine the locations of the residence of persons driving to Metra stations. Data from this survey was used to analyze the auto trip origins of riders using the two Metra lines traversing the northwest corridor. Exhibits 7-2 and 7-3 show the residential locations of Metra riders driving to the MD-W and UP-NW lines respectively. The density of people driving to the various stations on the MD-W line is higher in the western two-thirds of the corridor with the stations of Hanover Park, Schaumburg and

Roselle accounting for almost 50 percent of the total number of park and ride users on the MD-W line. Along the UP-NW line, the stations of Palatine, Arlington Park, Arlington Heights and Mount Prospect account for more than 50 percent of the park and ride users.

In general, Metra riders in the corridor travel to each of the stations from the north or south, with the I-90/Northwest Tollway forming a physical barrier for the residences of persons driving to the stations on either line. The residential locations of people driving to stations on the UP-NW line extend as far south as I-90 and those of persons driving to stations on the MD-W line are between I-90 on the north and North Avenue on the south. In addition to I-90, other factors influencing station choice may include available parking supply, train schedules, fare zones, and employment locations in the Chicago CBD.

7.1.3 Ridership/Trends

Overall, Metra ridership has increased in the corridor since 1985, although at a rate below system increases as indicated in Table 7-3. Total weekday boardings at Metra stations in the corridor have increased approximately 17 percent between 1985 and 1997, from 19,796 to 23,100. Most of this increase is attributable to the MD-W which outpaced the UP-NW in ridership growth during both the periods from 1985 to 1991 and 1991 to 1997. Several stations in the corridor have had significant increases in ridership since 1985 including Medinah – 140 percent, Schaumburg – 138 percent, Hanover Park – 91 percent, Bartlett – 66 percent and Edison Park – 65 percent. Stations with an increase in average weekday boardings of more than 500 between 1985 and 1997 include Schaumburg – up 954, Hanover Park – up 695, Palatine – up 506 and Arlington Park – up 501. Average weekday boardings at the five stations along the MD-W between Medinah and Bartlett have increased by more than 2,400 since 1985. With the exception of the Edison Park Station, all of these high growth stations are located west of I-290, in the central and western subareas.

Table 7-3: 1985-1997 Growth in Metra Ridership

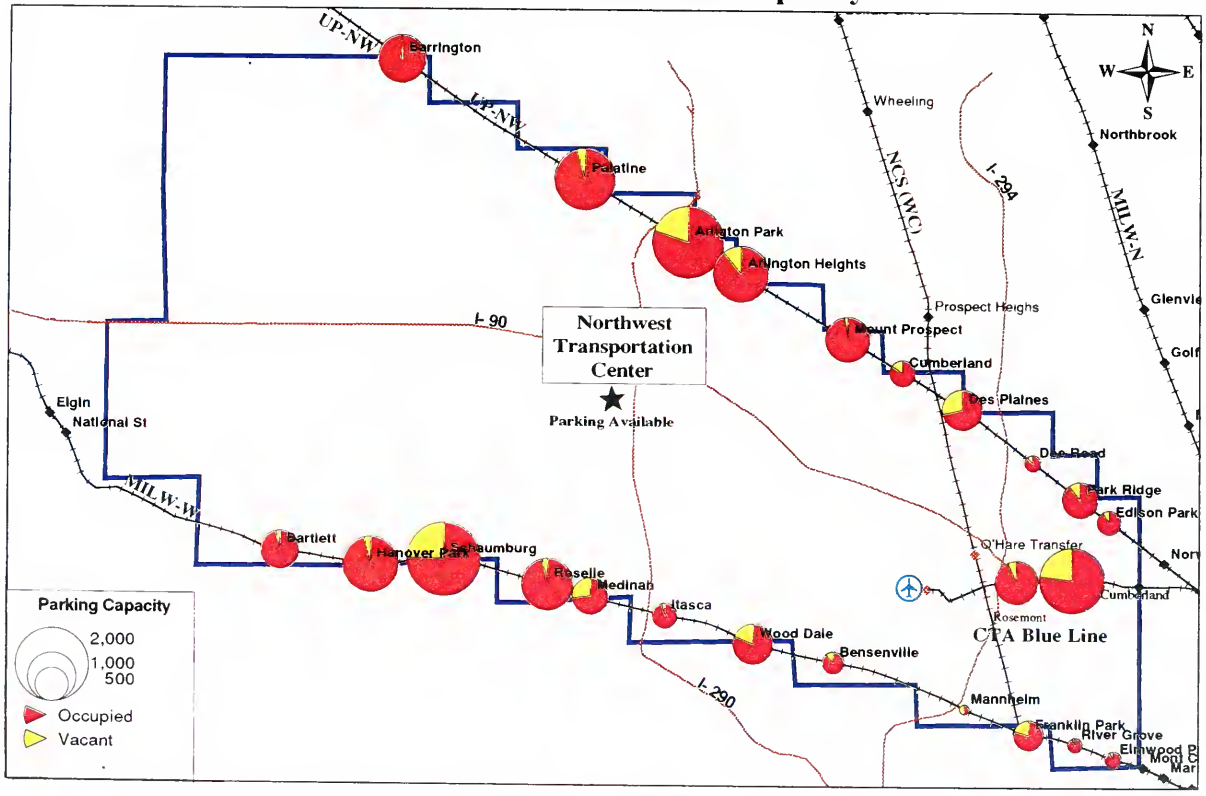
	1985	1991	1997	% Change 1985-1991	% Change 1991-1997
Metra Boardings in NW Corridor	19,796	22,355	23,100	12.9%	3.3%
UP-NW	*12,902*	*14,095*	*13,591*	*9.2%*	*-3.6%*
MD-W	*6,894*	*8,260*	*9,441*	*19.8%*	*14.3%*
NCS			*68*	*N/A*	*N/A*
Total Boardings UP-NW, MD-W, NCS	45,485	53,747	60,561	18.2%	12.7%
Metra System Boardings	224,613	261,486	277,555	16.4%	6.1%

Data Source: Metra 1985, 1991 & 1997 On-board Surveys

Ridership levels vary substantially between stations in the corridor (see Exhibit 7-4). The busiest stations include Arlington Heights, Arlington Park, Palatine, Barrington, Roselle, Schaumburg, and Hanover Park, all with more than 1,500 weekday boardings. On average, stations in the corridor averaged slightly more than 1,000 weekday boardings in 1997.

Exhibit 7-1

1997 Transit Park-and-Ride Capacity

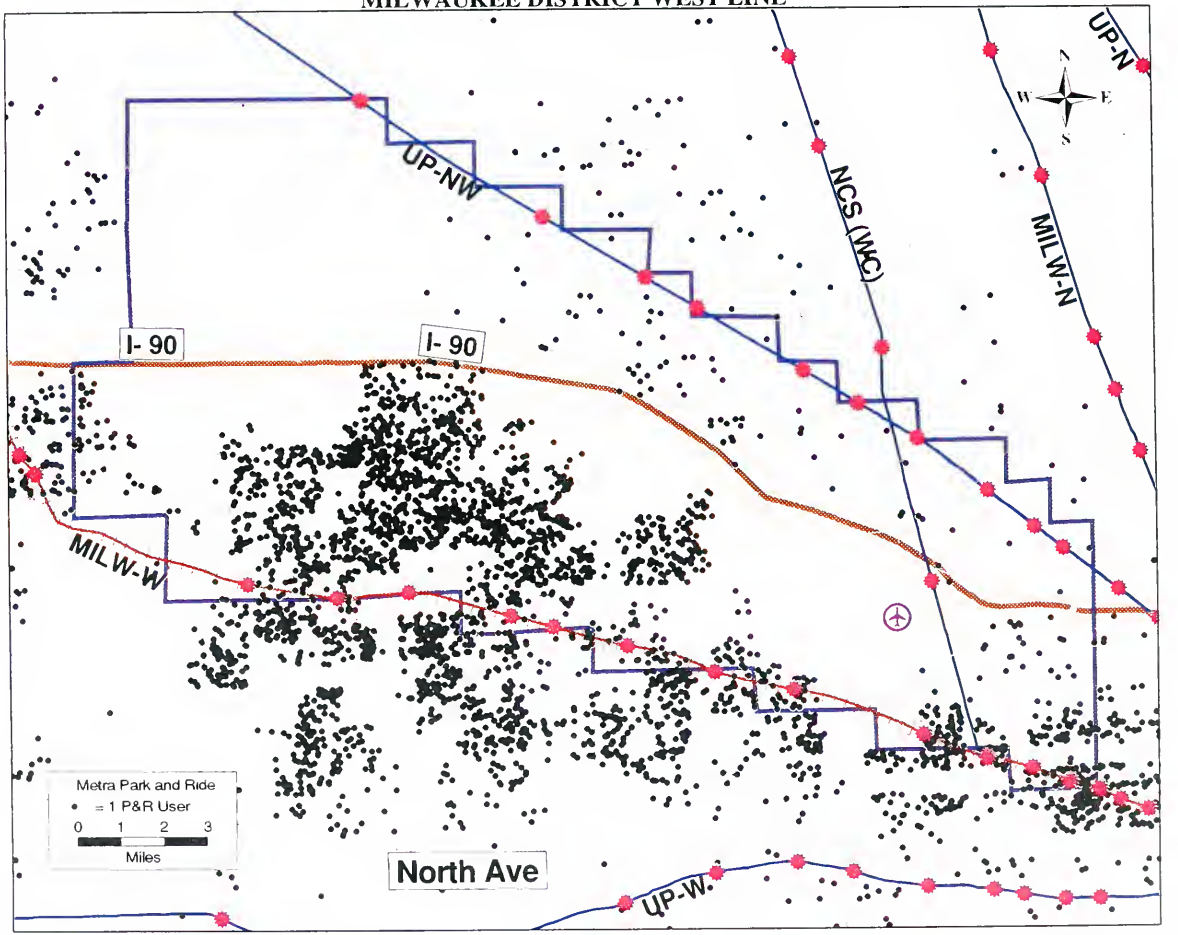


Data Source: Metra, CTA, and Pace
RTA System Planning Division, May 1998

Exhibit 7-2

RESIDENTIAL LOCATIONS OF METRA PARK & RIDE USERS

MILWAUKEE DISTRICT WEST LINE



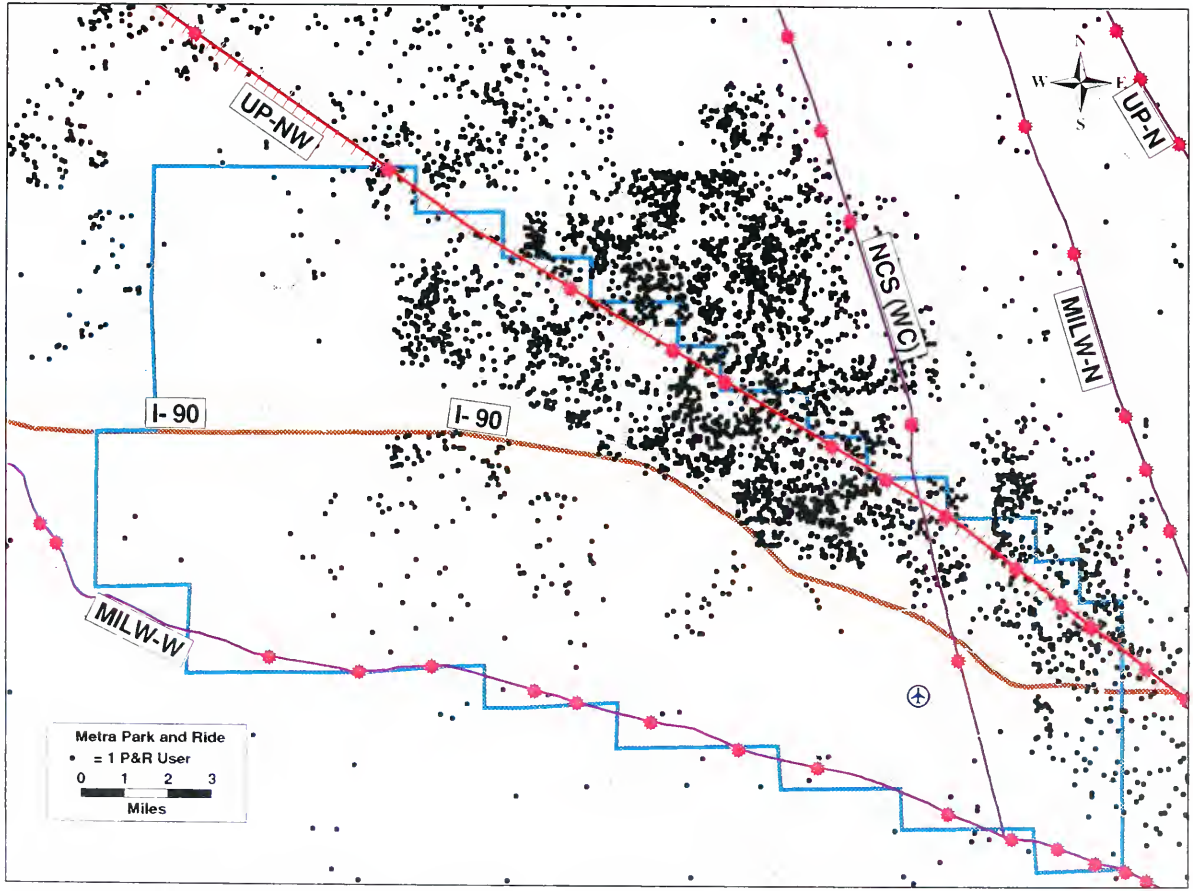
Data Source: Metra 1990 License Plate Survey

RTA System Planning Division, August 1998

Exhibit 7-3

RESIDENTIAL LOCATIONS OF METRA PARK & RIDE USERS

UNION PACIFIC NORTH-WEST LINE

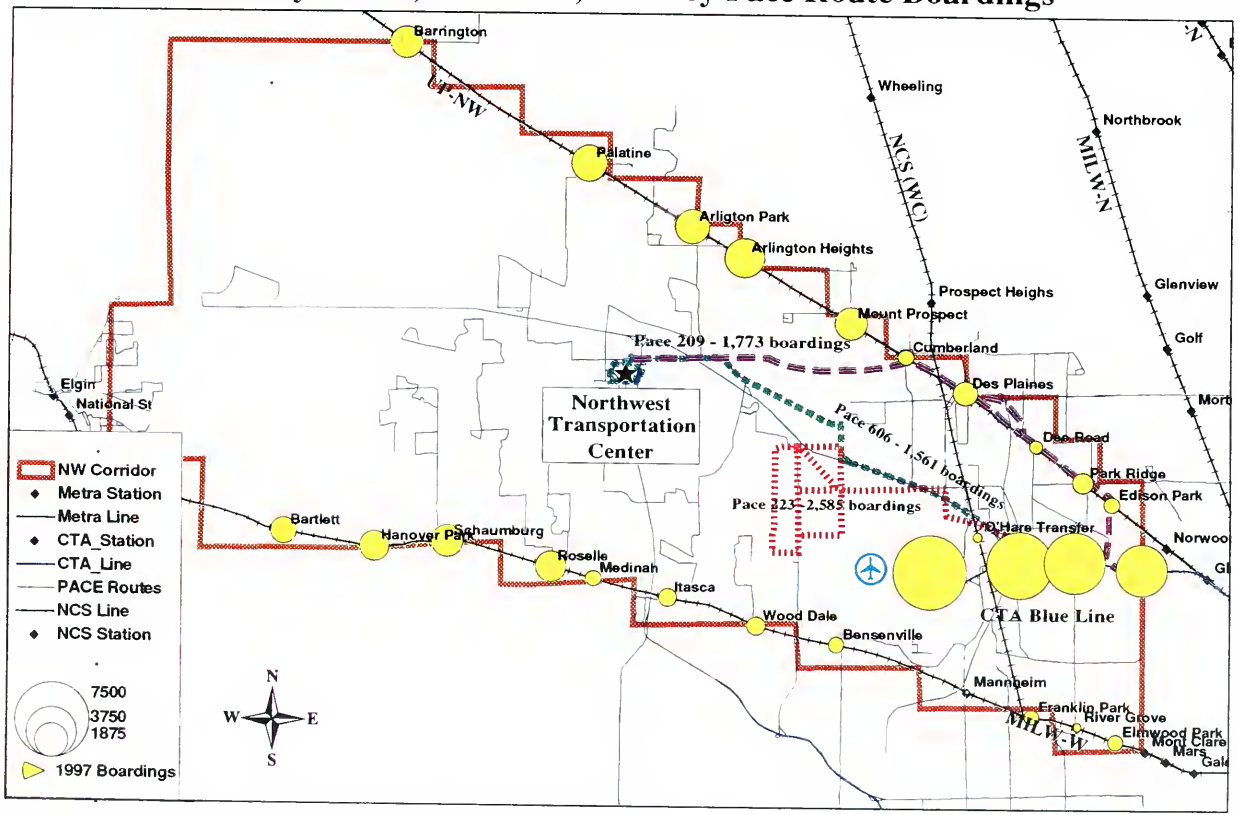


Data Source: Metra 1990 License Plate Survey

RTA System Planning Divison, August 1998

Exhibit 7-4

1997 Daily Metra, CTA Rail, and Key Pace Route Boardings



Data Source: Metra, CTA and Pace
RTA System Planning Division, May 1998

Despite the suburb to city orientation of Metra service, a significant number of commuters use Metra to travel into the study area. Commuters are generally assumed as passengers exiting trains during morning peak service. During the morning peak, 1,732 passengers exited Metra trains at stations in the corridor. The source of these passengers include both inbound and outbound trains (see Table 7-4). Although inbound service is more frequent during the morning, 57 percent of these passengers traveled to stations in the corridor on outbound trains. Stations with more than 100 alightings during the morning peak include Arlington Heights (221), Arlington Park (179), Des Plaines (171), Barrington (129), Mt. Prospect (121), and Park Ridge (103). All of these stations are located on the UP-NW.

Table 7-4: 1997 Metra Corridor Ridership by Direction

Metra Lines	1997 Metra Trips to NW Corridor (A.M. Peak)			
	Total Alighting	INBOUND	OUTBOUND	% Reverse Commuting
Union Pacific - Northwest	1,102	460	642	58%
Milwaukee District - West	574	231	343	60%
North Central Services	56	56	0	0%
TOTAL	1,732	747	985	57%

Data Source: Metra 1997 On-board Survey

As shown in Table 7-5, the total number of morning peak inbound Metra users destined to the northwest corridor has increased significantly since 1985. Between 1985 and 1991, ridership increased more on the UP-NW than on the MD-W. During the period from 1991 to 1997, the MD-W experienced a higher rate of growth in this market.

Table 7-5: Metra Inbound A.M. Alightings in the Corridor

Corridor Inbound Commuters	1985	1991	1997	% Change 1985-1991	% Change 1991-1997
Union Pacific - Northwest	283	398	460	41%	16%
Milwaukee District - West	166	177	231	7%	31%
Total Corridor	449	575	691	28%	20%

Data Source: Metra 1997 On-board Survey

The total number of Metra reverse commuters destined to the corridor has increased significantly since 1985 (see Table 7-6). The increase in reverse commuters has far outpaced the growth in inbound riders destined to the northwest corridor. Between 1985 and 1991, the reverse commute market increased at a higher rate on the UP-NW, while the MD-W increased at a more significant pace between 1991 and 1997. In 1985, the number of inbound commuters destined to the corridor outnumbered the number of reverse commuters. By 1997, this pattern reversed with almost 1,000 reverse commute riders compared to less than 700 inbound riders headed to the corridor.

Table 7-6: Metra Outbound A.M. Alightings in the Corridor

Metra Reverse Commuters	1985	1991	1997	% Change 1985-1991	% Change 1991-1997
Union Pacific - Northwest	225	394	642	75%	63%
Milwaukee District - West	125	185	343	48%	85%
Total Corridor	350	579	985	65%	70%

Data Source: Metra 1997 On-board Survey

7.2 *CTA Rapid Transit*

7.2.1 Service

The eastern subarea is served by CTA's Blue Line, with stations at O'Hare, Rosemont, Cumberland, and Harlem. This section of the Blue Line opened in 1983-84. The Blue Line in the northwest corridor connects O'Hare Airport with the Chicago Loop and serves intermediate neighborhoods and employment centers in the northwest part of Chicago as well as the west side of Chicago. Service on the line is frequent with headways averaging less than five minutes during peak periods, 10 minutes or less during the off-peak, and 20 minutes overnight. Connecting Pace and CTA bus service is available at each of the four Blue Line stations in the eastern subarea. In addition, park and ride facilities are available at the Cumberland and Rosemont stations with a total of more than 2,400 spaces. Parking capacity for these CTA stations as well as their occupancy rate for 1997 is shown in Exhibit 7-1.

7.2.2 Ridership/Trends

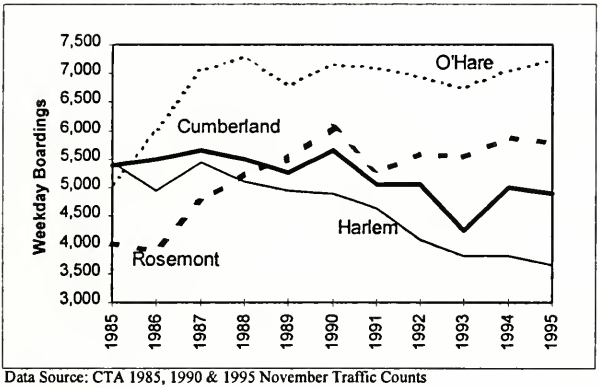
The Blue Line stations located in the corridor are among the CTA rail system's busiest, with weekday boardings that exceed the system average. Total weekday boardings at these four stations increased from 1985 to 1990 and decreased from 1990 to 1995. In the period from 1985 to 1990, ridership in the corridor increased 19 percent despite a systemwide decline of 13 percent. Total weekday boardings at the four stations in the corridor peaked in 1990 at 23,750. A decline in weekday boardings of 9 percent has occurred since 1990, still smaller than the systemwide decline of 15 percent. Exhibit 7-4 depicts station level 1997 CTA rail boardings.

Table 7-7: 1985-1995 Trends in CTA Ridership

	CTA Ridership				
	1985	1990	1995	% Change 1985 to 1990	% Change 1990 to 1995
Northwest Corridor	19,950	23,750	21,600	19.0%	-9.1%
O'Hare	*5,050*	*7,150*	*7,250*	*41.6%*	*1.4%*
Rosemont	*4,050*	*6,050*	*5,800*	*49.4%*	*-4.1%*
Cumberland	*5,400*	*5,650*	*4,900*	*4.6%*	*-13.3%*
Harlem	*5,450*	*4,900*	*3,650*	*-10.1%*	*-25.5%*
O'Hare Branch (O'Hare to Grand)	68,450	68,300	59,100	-0.2%	-13.5%
CTA Rail System	577,350	500,350	423,200	-13.3%	-15.4%

Data Source: CTA 1985, 1990 & 1995 November Traffic Counts

Figure 7-2: 1985-1995 Trends in CTA Corridor Rail Ridership



Data Source: CTA 1985, 1990 & 1995 November Traffic Counts

Changes in ridership have varied among the four stations as indicated in Table 7-1 and Figure 7-2. Boardings at the O'Hare station have increased by more than 40 percent since 1985, with most of this increase occurring in the late 1980s. Ridership at the Rosemont station is also up more than 40 percent since 1985. However, ridership at this station peaked in 1990 and has since declined slightly. By contrast, the Cumberland and Harlem stations have experienced a marked decrease in ridership since 1985. Cumberland increased slightly from 1985 to 1990, but since 1990 has lost about 13 percent of its riders. Harlem has lost about one-third of its riders since 1985, with the most significant drop occurring since 1990. By 1995, the O'Hare station was the busiest of the four, followed by Rosemont, Cumberland, and finally Harlem.

7.3 *CTA Bus*

7.3.1 Service

CTA bus service is limited in the corridor. Seven CTA bus routes serve the corridor. All of this service is provided to the east of O'Hare Airport. Two of these routes operate exclusively within the study area boundaries. Together these two routes, 64 and 69, average 620 weekday boardings. Route 64 serves as a feeder service to the Cumberland station on CTA's Blue Line and runs in a loop south of this station. Route 69 provides a similar service for areas south of the Harlem station. CTA is considering replacing these fixed routes with a more flexible service. Only a portion of the other five CTA bus routes operate in the corridor. Routes 80, 152, and 77 operate as part of the city of Chicago's grid system of buses and travel east-west roughly from Chicago's western border to Lake Shore Drive. Finally, Routes 88 and 81W serve as feeder services to the Blue Line. Route 88 connects to both the Jefferson Park and Harlem stations. Route 81W connects to the Cumberland and Jefferson Park stations.

7.3.2 Ridership/Trends

CTA weekday bus ridership has fallen significantly in the corridor since 1992 as shown in Table 7-8. This ridership decline has occurred on all types of CTA bus service and is consistent with an overall system decline in bus ridership during the same period. Ridership on Routes 64 and 69 has fallen by 30 percent since 1992 exceeding the system average of 22 percent during this same period. The east west grid buses for Routes 80, 152, and 77, which show the highest ridership of the CTA bus service in the study area, have experienced a decrease in ridership of more than 20 percent since 1992. Finally, routes 88 and 81W, which also provide only a portion of service in the corridor, have both experienced a decline in ridership of close to 40 percent since 1992.

Table 7-8: Trends in CTA Corridor Bus Ridership

	CTA Bus Ridership		
	1992	1996	% Change
NW Corridor Routes	55,790	43,500	-22.0%
Circulators (64,69)	*890*	*620*	*-30.3%*
*East-West Grid (77,80,152)**	*49,610*	*39,550*	*-20.3%*
*CTA Rail Feeder (81W,88)**	*5,290*	*3,330*	*-37.1%*
CTA Bus System	1,084,560	850,940	-21.5%

*Only a portion of these routes are in the corridor.

Data Source: CTA

7.4 Pace Suburban Bus/Vanpools

7.4.1 Fixed-Route Service

Pace operates bus routes throughout the northwest corridor. In total, 26 routes provide at least a portion of their service in the corridor. Ten of these routes operate exclusively within the study area boundaries and 15 provide service west of O'Hare Airport. The operating characteristics of Pace routes include long-distance express routes connecting CTA rail stations and major employment centers, feeder routes to Metra and CTA rail stations and local service connecting residential, retail and commercial centers.

Following is a description of some of the key Pace routes in the corridor. Routes on this list provide service over a wide area and in many cases have a relatively high level of ridership.

Key Routes in Corridor

- *Routes 223/616* – Connect the CTA Blue Line at Rosemont to Elk Grove Village. Route 223 serves industrial areas and has the highest ridership of any Pace route in the corridor. Route 616 serves areas along Arlington Heights Road;
- *Route 606* – Connects CTA's Blue Line at Rosemont to Woodfield via I-90, Algonquin Road & Golf Road;
- *Route 209* – Connects Woodfield to the UP-NW and CTA's Blue Line at Harlem via Golf Road and the Northwest Highway;
- *Route 600* – Connects Woodfield to CTA's Blue Line at Rosemont with express service for inbound commuters;
- *Routes 696/699* – Local routes serving Palatine, Schaumburg, Elk Grove Village, Rolling Meadows, and Arlington Heights. Both routes connect to Woodfield, residential, commercial areas and stations on the UP-NW;
- *Route 610* – Connects CTA's Blue Line at Rosemont to Prairie Stone via I-90; and
- *Routes 757/767* – Connect the Douglas and Congress branches of the CTA Blue Line and the region's western suburbs to the northwest corridor. Route 757 connects to Elk Grove Village and Woodfield. Route 767 serves Prairie Stone.

Pace service in the northwest corridor is primarily geared to peak period work trips with the highest level of service during peak periods on weekdays. Several routes in the northwest corridor target reverse commuters with service from CTA's Blue Line to suburban employment centers. In general, Pace routes in the corridor provide headways of 10 to 30 minutes during the peak period and one hour during the off-peak. Of the 25 routes in the corridor, only seven operate on Saturday and three on Sunday.

Table 7-9 provides detail on Pace routes in the northwest corridor with information on the general direction of routes, periods of operation, total weekday operating hours, the orientation of service (inbound vs. outbound), and average weekday ridership. The table is limited to routes that travel west of O'Hare Airport, defined as Elmhurst Road. Of the 11

routes operating east of Elmhurst, only two operate exclusively in the corridor. By contrast, most of the routes west of Elmhurst Road operate exclusively or stay within the corridor boundary for the most part. A focus on these routes provides a better picture of available bus service in the corridor.

Table 7-9: Pace Service in Corridor (W. of Elmhurst Road)

Route	Peak/Midday/ Evening Service	Operating hours	Outbound a.m./ Inbound a.m./ Bi-Directional	1997 Weekday Ridership
East-West Routes				
209 Golf Road-Woodfield	PK/MD/EV	18.0	BD	1,773
606 Rosemont-Woodfield	PK/MD	15.0	BD	1,561
554 Elgin-Streamwood-Schaumburg	PK/MD	9.0	IB	55
694 Mt. Prospect Feeder	PK	5.5	BD	66
610 River Road-Prairie Stone	PK	6.5	OB	373
600 Woodfield-Rosemont	PK	5.0	IB	125
555 Elgin-Prairie Stone-Schaumburg	PK	5.0	BD	86
637 Rosemont-Wood Dale	PK	4.0	OB	28
Subtotal				4,067
North-South Routes				
696* Woodfield-Arlington Heights-Rand	PK/MD	14.5	BD	581
699* Palatine-Woodfield-Elk Grove	PK/MD	13.5	BD	339
601 Wood Dale Office Corridor	PK	4.5	BD	95
602 Higgins-Salem Cedarcrest	PK	4.0	IB	54
723* Northeast Palatine-Arlington Park	PK	3.5	IB	46
Subtotal				1,115
North-South/East-West Routes				
223 Rosemont-Elk Grove Village	PK/MD/EV	20.5	BD	2,585
616 Rosemont-Itasca	PK	6.5	BD	259
767* Congress/Douglas-Prairie Stone	PK	4.5	OB	204
757* Forest Park-Elk Grove-Woodfield	PK	8.5	OB	221
Subtotal				3,269
Total Pace Ridership (W. of Elmhurst)				**8,451**

* Only a portion of these routes are in the northwest corridor
Data Source: Pace

In total, 17 routes operate west of Elmhurst Road, 10 exclusively within the study area boundaries. Service on these routes is generally oriented to the commuter market. Only six routes provide service beyond the peak morning and evening commute hours. Only two routes provide service into the late evening. Eight of the routes operating west of Elmhurst Road have an east-west orientation and account for a significant portion of ridership. Five routes have a more north-south orientation and four show a less clear directional orientation. Routes with a north-south orientation account for a small amount of ridership in the corridor.

Seven of the 15 routes operating west of O'Hare Airport target specific commuter markets. These routes operate in only one direction during the morning peak and reverse direction in

the evening. Four of the routes target commuters traveling from the city of Chicago and adjoining inner suburbs to suburban employment centers. The remaining three target commuters traveling from within the corridor toward the city of Chicago. Of the reverse commuter routes, two serve Prairie Stone, one, Rolling Meadows and Woodfield and the fourth, Wood Dale. Of the routes targeting inbound commuters, two provide feeder service to Metra stations and the third connects to CTA's Blue Line at Rosemont. Routes targeted to outbound commuters show significantly higher ridership levels than those which target inbound commuters.

7.4.2 Ridership/Trends

Pace ridership has increased in the corridor since 1985. Most of this increase occurred between 1985 and 1992 and is attributable to a select number of routes in the corridor. Ridership increases are most significant for routes serving areas west of O'Hare Airport.

Total weekday ridership for the 25 routes with service in the northwest corridor has increased from more than 14,000 in 1985 to more than 17,000 in 1997. In the period between 1985 and 1992 ridership on routes west of O'Hare Airport increased by more than 70 percent while routes serving areas to the east saw a more modest increase of 7 percent. Since 1992, ridership has increased by about 7 percent on routes serving areas west of O'Hare, while routes east of O'Hare Airport have experienced a decline of about 13 percent as shown in Table 7-10. Much of the gain in ridership to and from the area west of O'Hare Airport is attributable to routes 223 and 606. Weekday ridership on Route 223, which connects CTA's Blue Line to Elk Grove Village industrial areas, has more than tripled since 1985, from 700 to 2,585. Ridership on Route 606, which connects the CTA's Blue Line to commercial areas in Arlington Heights, Rolling Meadows and Woodfield, has increased from 768 in 1987 to 1,561 in 1997. 1997 Pace ridership on three key routes is shown in Exhibit 7-4.

Table 7-10: Trends in Weekday Pace Corridor Ridership 1985-1997

	1985	1992	1997	% Change 1985-1992	% Change 1992-1997
Routes in Corridor	14,180	18,105	17,340	27.7%	-4.2%
W. of Elmhurst Road	*4,616*	*7,893*	*8,451*	*71.0%*	*7.1%*
E. of Elmhurst Road	*9,564*	*10,212*	*8,889*	*6.8%*	*-13.0%*
Pace System	135,411	137,377	135,577	*1.5%*	*-3.5%*

Data Source: Pace

A select number of Pace routes in the corridor account for a large portion of total ridership. Of the routes operating west of O'Hare Airport, only three average more than 1,500 weekday passengers. Together, these three routes 223, 209, and 606 account for 72 percent of total weekday ridership west of O'Hare Airport. All the these routes travel exclusively within the corridor, connect to the CTA rail Blue Line service and are generally oriented to the east-west direction.

7.4.3 Vanpools

Vanpools serve as an additional component of transit service in the northwest corridor. Pace operates a total of 87 vanpools in the corridor. Of this total, 80 vanpools serve almost 600 persons traveling to employment locations in the corridor. The vast majority of these vanpools are serving Prairie Stone (54) or the Federal Aviation Administration in Des Plaines (14). On average each vanpool serving employment centers in the corridor carries seven persons and travels more than 35 miles each way. Seven vanpools serve almost 50 persons living in the corridor who travel to employment locations outside of the corridor. These routes carry on average six persons a total of 35 miles each direction.

7.5 Summary

Metra, CTA and Pace all provide service in the northwest corridor. Metra service includes the Milwaukee District-West line on corridor's southern border, the Union Pacific-Northwest line on the northern boundary and the North Central Service line which traverses the corridor just east of O'Hare Airport. Pace serves the corridor with 26 bus routes, 10 of which operate exclusively within the corridor boundaries. CTA serves the corridor from O'Hare Airport to the east with the Blue Line rail service and seven local bus routes.

Much of the transit service in the northwest corridor is geared to traditional work trips. The frequency of service declines outside of the morning and evening peak periods, and only limited service is available during the late evening and on weekends. Most of the commuter rail service in the corridor is targeted to the suburb to city commuter, while Pace and CTA service shows less of a directional orientation in service levels. Four of the seven express Pace buses in the corridor specifically target the reverse commuter.

According to ridership data provided by the region's three service providers, with the exception of CTA bus service, transit use has increased in the northwest corridor since the mid 1980s. Notable increases have occurred on Metra's Milwaukee District-West line (up 37%), several of the Pace routes, and at the Rosemont and O'Hare stations on the Blue Line. Since 1985, Pace ridership has increased by more than 25 percent on routes in the corridor and almost doubled on routes traveling west of O'Hare Airport. In contrast, all of the CTA bus routes in the corridor have experienced ridership declines. Ridership among Metra's reverse market users destined to the corridor has increased more than 180 percent since 1985, outpacing growth in Metra ridership inbound to the corridor and in Metra's traditional market.

Some significant findings based on transit ridership and service levels from the three service boards include:

- Transit service coverage, service levels, and ridership are highest from O'Hare Airport to the east;

- Total transit boardings on an average weekday in the northwest corridor are more than 21,000 on CTA rail and more than 23,000 on Metra;
- Pace ridership has increased by more than 80 percent since 1985 on routes traveling west of O'Hare Airport;
- Pace routes serving Elk Grove Village and Woodfield/Rolling Meadows have experienced the most significant increases in ridership, in some cases doubling or tripling in 10 years;
- The highest ridership Pace routes in the corridor connect to the CTA Blue Line;
- Ridership on CTA rail has increased significantly since 1985 at the Rosemont and O'Hare stations (both up more than 40%); and
- The total number of Metra reverse commuters headed to the corridor has almost tripled since 1985.

8. Transit User Profile

This chapter profiles transit users in the northwest corridor by analyzing available survey data from Metra, CTA and Pace. The analysis specifically addresses differences between the traditional market and reverse market. Chapter 7 discusses the specific definition of these markets. A profile of transit users for both traditional and reverse travel markets provides insight into factors contributing to current travel choices in the corridor. The first section discusses Metra and CTA users with some discussion of Pace users who also use CTA rail. The second section provides additional information on Pace users in the corridor based on survey data from a selected number of routes.

8.1 Metra/CTA Users

8.1.1 Survey Sample Size/Data Organization

In the summer of 1996, Metra conducted an on-board ridership survey in which 15,382 valid survey responses were collected from 50,000 surveys distributed. Of these, a total of 2,250 and 1,230 were returned from the UP-NW and MD-W lines respectively. Metra's survey collected information on the respondents' travel characteristics, socio-economic status, weekly and monthly trip patterns, and attitudes on Metra service. The survey was conducted during all Metra operating hours with responses occurring predominantly on the inbound morning trains as shown in Table 8-1. Metra attempted to survey users only once during the day which resulted in the bias toward morning surveys.

For the purposes of this analysis, responses from persons traveling to or from the northwest corridor are grouped to make comparisons between corridor Metra users and regional Metra users. Responses within the corridor are further grouped, based on the time and direction of travel, to examine the difference between the suburb-to-city traditional market and city-to-suburb reverse market. The midday trips, which include both inbound and outbound directions, are categorized as city-to-suburb travel market because the survey results indicate that about 50 percent of morning inbound respondents left work at least once before 3:00 PM in the past month. Although the sample size for the corridor reverse market included just 151 respondents, this number represents more than 15 percent of Metra total corridor reverse riders.

CTA conducted a similar passenger survey in 1994 to gather data on the CTA Blue Line O'Hare Branch together with 29 CTA bus routes that traverse the northwest side of Chicago. The survey was administrated during the morning peak (6 a.m. to 10 a.m.), and the midday period. This analysis focuses only on the 2,138 rail survey responses received during the morning peak.

Table 8-1: Metra 1996 On-Board Survey Sample Size

Survey Period and Direction	Metra Systemwide # of Surveys Received	Metra Systemwide Percentage of Total	Northwest Corridor # of Surveys Received	Northwest Corridor Percentage of Total
Suburb-to-City Traditional Market				
Inbound morning	11,966	78%	2,393	73%
Inbound midday	437	3%	95	3%
Outbound midday	420	3%	231	7%
Outbound PM rush	217	1%	36	1%
Outbound evening	417	3%	181	6%
Subtotal	**13,457**	**88%**	**2,936**	**90%**
City-to-Suburb Reverse Market				
Outbound morning	457	3%	104	3%
Inbound PM Rush	126	1%	47	1%
Inbound evening	11	0%		
Subtotal	**594**	**4%**	**151**	**4%**
Weekend	1,331	9%	194	6%
TOTAL	15,382	100%	3,281	100%

Data Source: 1996 Metra On-board Survey
Due to rounding, percentages may not add up to 100%

Respondents who boarded or alighted during the morning peak at the four corridor stations: Harlem, Cumberland, Rosemont, or O'Hare, are tabulated separately to study the travel characteristics of corridor riders. The CTA survey sample size is displayed in Table 8-2. This survey collected basic information on demographics and trip characteristics, including, where applicable, the bus route or rail line that a respondent transferred to/from and the total number of transfers needed to complete the trip. The transfer information provides insight into riders connecting between CTA rail stations and Pace routes which serve the corridor.

Table 8-2: CTA O'Hare Branch Survey Sample Size

	CTA O'Hare Branch A.M. Survey		
	Traditional Market	*Reverse Market*	
	From Corridor CTA Stations	*To Corridor CTA Stations*	*To Pace Bus Reaching NW Corridor West of Airport*
O'Hare Branch	2,138	2,134	2,134
Corridor 4 Stations	1,358	836	80
% of Corridor Stations	64%	39%	4%

Data Source: 1994 CTA Passenger Survey

For the purposes of this analysis, CTA survey results are again grouped into several categories to provide detail on users in the corridor. Survey respondents are grouped by travel direction with either inbound or outbound during the morning peak hours (6-10 a.m.). A small subset of outbound users, classified as those who exited at a CTA station and boarded a Pace bus for destinations west of O'Hare Airport, is grouped for detail on "reverse commute" users with final destinations west of O'Hare Airport. This last subgroup represents about 10 percent of surveyed outbound respondents for the northwest corridor. Pace routes connecting the CTA O'Hare branch to the corridor at the Rosemont station include Routes 223 and 616 serving

industrial areas immediately west of O'Hare airport; Routes 600 and 606 serving Woodfield Mall; and Route 610 serving Prairie Stone. In addition, Route 209 connects to the Harlem station and serves the Des Plaines and Woodfield Mall areas via Illinois Route 12 and Golf Road.

Comparisons between Metra and CTA/Pace riders reveal some significant differences in both the type and travel patterns of users. This difference is particularly notable between the Metra reverse commuters and CTA/Pace reverse commuters. The following sections detail these differences in travel and demographic characteristics.

8.1.2 Travel Characteristics

Trip Purposes – The vast majority of transit users in the northwest corridor are traveling for work purposes. Among Metra users, more than 94 percent of the traditional market trips in the corridor are work related, as shown in Table 8-3. This figure compares to 87 percent for the reverse market where social/recreational trips represent another 9 percent of the total.

Table 8-3: Responses to Metra and CTA Surveys by Purpose

METRA SURVEY	Suburb-to-City Traditional Market		City-to-Suburb Reverse Market	
Trip Purposes	*Regional*	*Corridor*	*Regional*	*Corridor*
Work or Work Related	96%	94%	86%	87%
Shopping	2%	1%	1%	0%
Social/Recreational	1%	1%	7%	9%
School	2%	3%	3%	3%
Other	0%	1%	3%	2%

Data Source: 1996 Metra On-board Survey

CTA SURVEY	Morning Inbound Traditional Market	Morning Outbound Reverse Market	
Trip Purposes	*From Corridor CTA Stations*	*To Corridor CTA Stations*	*To Pace Bus Reaching NW Corridor West of Airport*
Work or Work Related	78%	76%	98%
Shopping	0%	1%	0%
Social/Recreational	1%	1%	0%
School	5%	1%	0%
Airport Related Trips	1%	9%	0%
Other	15%	12%	2%

Data Source: 1994 CTA Passenger Survey
Due to rounding, percentages may not add up to 100%

A predominance of CTA rail users are traveling for work purposes, although less frequently than for Metra users. Among respondents who boarded or alighted at one of the CTA rail stations in the corridor, little difference is shown in trip purposes between inbound and outbound commuters. Among inbound users, work trips represent 78 percent of the total, compared to 76 percent for outbound users. This proportion is 10 to 20 percent lower than for

Metra riders. The highest proportion of work trips are observed among riders who also use Pace to reach destinations west of O'Hare Airport. Among this group of users, work trips represent 98 percent of the total. This data indicates that Pace bus routes connecting to CTA rail stations in the corridor serve work trips almost exclusively. Several other trip types represent a significant proportion of total trips in the corridor. Most notably almost 10 percent of outbound trips on CTA rail are airport related.

Trip Frequency – The majority of transit users in the corridor are frequent users of their respective systems. Table 8-4 details trip frequency for transit users. The Metra survey reveals that reverse market riders use Metra less frequently than those in the traditional market. Among CTA rail users, inbound and outbound passengers show little difference in the frequency of use. However, a high proportion of CTA rail survey respondents (15 to 16 percent) had not used the service any other time in the previous week. This is likely due, in large part, to airport related trips which accounted for 9 percent of the total. The most important finding of the frequency of use is that residents of the city of Chicago who work in the northwest corridor who use both CTA rail and Pace are using transit more consistently than any other group. Among this subset of users, 92 percent had used the service at least four other times in the previous week.

Table 8-4: Responses to Metra and CTA Surveys by Frequency

METRA SURVEY	Suburb-to-City Traditional Market		City-to-Suburb Reverse Market	
# of other trips in the last 4 weeks	*Regional*	*Corridor*	*Regional*	*Corridor*
None	1%	1%	5%	4%
1-9 times	4%	5%	13%	13%
10-19 times	6%	5%	9%	9%
20-29 times	13%	12%	14%	14%
30 times or more	76%	78%	60%	60%
Considered as Regular Users	97%	96%	89%	89%

Data Source: 1996 Metra On-board Survey

CTA SURVEY	Morning Inbound Traditional Market	Morning Outbound Reverse Market	
# of Other Days Used This Train Last Week	*From Corridor CTA Stations*	*To Corridor CTA Stations*	*To Pace Bus Reaching NW Corridor West of Airport*
None	15%	16%	5%
One	4%	4%	0%
Two	4%	5%	1%
Three	6%	5%	3%
Four or More	72%	70%	92%

Data Source: 1994 CTA Passenger Survey

Mode of Access and Egress – Access and egress modes are substantially different for Metra and CTA users. In general, Metra users in the corridor access stations by driving and reach their final destinations by walking. By contrast, CTA rail users in the corridor tend to access stations by walking or another CTA service and reach their final destination by walking or

bus, as shown in Table 8-5. Among morning inbound trips, almost three-fourths of Metra users drive and either park or get dropped off. Among CTA rail inbound users in the corridor, more than 90 percent reached the station by walking. The reverse travel market shows quite a different pattern with a higher proportion of both Metra and CTA users accessing the rail line by other transit services, particularly by bus. Among those trips destined to the corridor, 22 percent of Metra respondents and 55 percent of CTA rail users indicated that they used another transit service to access the respective rail line.

Table 8-5: Responses to Metra and CTA Surveys by Mode of Access

METRA SURVEY	Suburb-to-City Traditional Market		City-to-Suburb Reverse Market	
Mode of Access	*Regional*	*Corridor*	*Regional*	*Corridor*
Drive Alone and Park	54%	63%	29%	29%
Dropped off	12%	11%	11%	13%
Walk	25%	18%	29%	24%
Bus	3%	1%	19%	22%
Other	6%	6%	13%	13%

Data Source: 1996 Metra On-board Survey

CTA SURVEY	Morning Inbound Traditional Market	Morning Outbound Reverse Market	
Mode of Access	*From Corridor CTA Stations*	*To Corridor CTA Stations*	*To Pace Bus Reaching NW Corridor West of Airport*
Drove	2%	3%	1%
Got a Ride	1%	8%	0%
Walk	91%	64%	39%
Other CTA Service	4%	19%	55%
Other	1%	7%	4%

Data Source: 1994 CTA Passenger Survey
Due to rounding, percentages may not add up to 100%

Egress modes in the northwest corridor are again much different for Metra and CTA rail users. Among Metra riders destined to the corridor, 58 percent walked to their final destinations, and 17 percent were picked up either by an employee shuttle or someone else (see Table 8-6). CTA rail serves only the eastern subarea and therefore, a transfer to Pace is necessary to reach the middle or the western subarea. Thus, CTA rail riders show a significantly higher use of other transit modes, usually bus, to reach their final destination. In total, 62 percent of those surveyed use another transit service to reach their final destination.

Table 8-6: Mode of Egress for Corridor Reverse Travel Market

Mode of Egress	Metra Survey	CTA Survey
Walk	58%	23%
Transit	5%	62%
Employer's shuttle	10%	0%
Get picked up	7%	7%
Other	20%	8%

Data Source: 1996 Metra On-board Survey

The mode of access and egress appears to depend in large part on the land use/development density and the availability of connecting transit service at the station. Users with trips originating in lower density settings tend to access stations by driving, while those living in higher density areas in the eastern subarea of the corridor are more likely to access transit by walking. In terms of egress, persons with destinations in higher density locations, such as the Chicago CBD, tend to access final destinations by walking, while those with destinations in lower density locations, such as areas west of O'Hare Airport tend to use additional transit services.

Transfers – As shown in Table 8-7, the Metra users in the reverse travel market transfer to other transit services more often than the traditional group, as illustrated by a higher percentage of Metra users purchasing a CTA and/or Pace pass which allow for transfers. In total, 5 percent of survey respondents from the traditional market purchased a transfer pass compared to 15 percent of those in the reverse market.

Table 8-7: Responses to Metra Type of Ticket Links

METRA SURVEY	Suburb-to-City Traditional Market		City-to-Suburb Reverse Market	
Type of Ticket Links	*Regional*	*Corridor*	*Regional*	*Corridor*
CTA/Pace Link-Up Sticker	5%	5%	13%	15%
Pace PlusBus Sticker	1%	0%	2%	0%
None of the Above	95%	94%	86%	85%

Data Source: 1996 Metra On-board Survey

CTA survey data also indicates that reverse users require more transfers than traditional market patrons (see Table 8-8). Within the traditional market, CTA rail users transfer more than Metra users. Inbound and outbound CTA rail users show a remarkably different frequency of transferring. Just 10 percent of inbound CTA rail users transfer two or more times compared to 35 percent of outbound CTA rail users. Among those persons headed to areas west of O'Hare Airport, 50 percent transferred twice and more than 20 percent transferred three or more times.

Table 8-8: Responses to CTA Transfer Use

CTA SURVEY	Morning Inbound Traditional Market	Morning Outbound Reverse Market	
Number of Transfers	From Corridor CTA Stations	To Corridor CTA Stations	To Pace Bus Reaching NW Corridor West of Airport
None	57%	25%	0%
One	33%	41%	29%
Two	9%	27%	50%
Three or More	1%	8%	20%

Data Source: 1994 CTA Passenger Survey
Due to rounding, percentages may not add up to 100%

8.1.3 Demographic Information

Age and Gender – In the corridor, Metra riders are, on average, older than users of CTA and Pace. This difference is particularly pronounced between Metra users and CTA/Pace users headed west of O'Hare Airport. As shown in Table 8-9, more than one-fifth of CTA/Pace users who commute outbound to the northwest corridor are under 25 years old, compared to just 7 percent in this age group among Metra reverse riders.

Table 8-9: Age and Gender, Metra and CTA by Travel Direction

METRA SURVEY	Suburb-to-City Traditional Market		City-to-Suburb Reverse Market	
Age and Gender	Regional	Corridor	Regional	Corridor
Under 25	5%	6%	7%	7%
25-39	43%	42%	48%	51%
40-54	40%	39%	33%	28%
55-64	9%	10%	8%	9%
65 or Over	3%	2%	4%	5%
% of Female	53%	47%	52%	43%

Data Source: 1996 Metra On-board Survey

CTA SURVEY	Morning Inbound Traditional Market	Morning Outbound Reverse Market	
Age and Gender	From Corridor CTA Stations	To Corridor CTA Stations	To Pace Bus Reaching NW Corridor West of Airport
Under 25	15%	18%	21%
25-39	42%	55%	53%
40-54	31%	21%	22%
55-64	9%	5%	3%
65 or Over	3%	2%	1%
% of Female	47%	47%	52%

Data Source: 1994 CTA Passenger Survey
Due to rounding, percentages may not add up to 100%

The reverse market users are younger than the traditional market for both Metra and CTA rail. Among Metra users, 58 percent of the corridor's reverse market is under the age of 39, compared to just 48 percent in the traditional market. Outbound CTA rail users are also younger than inbound users with 73 percent under the age of 39 compared to 57 percent for inbound commuters.

In terms of gender, a lower proportion of female Metra riders are found in the reverse market than in the traditional market. The highest proportion of female users is found among those persons using both CTA rail and Pace to reach their final destination.

Auto Ownership – A high proportion of users from the reverse market are transit dependent, particularly among CTA rail users (see Table 8-10). Among CTA users in the reverse market, two in three had no car available for the trip. By contrast, more than 70 percent of Metra

reverse market users had a car available. Auto availability among Metra's reverse market is lower than that found in its traditional market.

Table 8-10: Auto Ownership, Metra and CTA by Travel Direction

METRA SURVEY	Suburb-to-City Traditional Market		City-to-Suburb Reverse Market	
Auto Ownership	*Regional*	*Corridor*	*Regional*	*Corridor*
None	2%	2%	16%	12%
One	26%	24%	35%	43%
Two	50%	51%	32%	34%
Three or More	22%	24%	18%	11%
Car is Available for Today Trip	83%	85%	67%	72%

Data Source: 1996 Metra On-board Survey

CTA SURVEY	Morning Inbound Traditional Market	Morning Outbound Reverse Market	
Auto Ownership	*From Corridor CTA Stations*	*To Corridor CTA Stations*	*To Pace Bus Reaching NW Corridor West of Airport*
None	8%	31%	40%
One	31%	35%	41%
Two	42%	22%	13%
Three or More	20%	11%	6%
Car Available for Today Trip	69%	35%	33%

Data Source: 1994 CTA Passenger Survey
Due to rounding, percentages may not add up to 100%

Household Income – Household incomes are, on average, higher for Metra users than CTA users. Riders in the traditional market show higher household incomes than those in the reverse market among both Metra and CTA users. The corridor reverse market patrons using both CTA rail and Pace to reach destinations west of O'Hare Airport have the lowest household incomes among all transit users in the corridor, with more than 30 percent indicating a household income under $20,000 per year. This information is presented in Table 8-11.

Table 8-11: Household Income, Metra and CTA by Travel Direction

METRA SURVEY	Suburb-to-City Traditional Market		City-to-Suburb Reverse Market	
Household Income	*Regional*	*Corridor*	*Regional*	*Corridor*
Under $18,000	2%	2%	4%	7%
$18-24,999	3%	2%	6%	4%
$25-39,999	13%	9%	19%	22%
$40-59,999	19%	20%	25%	30%
$60-74,999	17%	20%	16%	15%
$75-99,999	20%	21%	13%	10%
Over 100,000	26%	25%	16%	13%

Data Source: 1996 Metra On-board Survey

CTA SURVEY	Morning Inbound Traditional Market	Morning Outbound Reverse Market	
Household Income	*From Corridor CTA Stations*	*To Corridor CTA Stations*	*To Pace Bus Reaching NW Corridor West of Airport*
Under 20,000	10%	26%	31%
20,001-30,000	10%	21%	17%
30,001-40,000	13%	15%	16%
40,001-60,000	28%	19%	16%
60,001-75,000	15%	8%	9%
75,001-100,000	13%	6%	6%
Over 100,000	12%	7%	7%

Data Source: 1994 CTA Passenger Survey
Due to rounding, percentages may not add up to 100%

8.1.4 Weekend Users

Limited survey information is available for weekend users of transit services in the corridor. However, Metra does provide general information of the average user of its system during the weekend period. Weekend users, much like those on weekdays, are most likely using Metra to travel to work as work purpose represents 60 percent of total trips. However, weekend users also use Metra in large part for recreational trips, representing 21 percent of the total. Occasional users are also more common during the weekend period. Specific detail is not available on how corridor users differ from the overall system due to a limited sample size.

8.1.5 CTA Park & Ride Users

CTA collected 1,600 surveys in March 1994 to gather data on CTA rail users who parked at either Cumberland (1,500 spaces) or River Road (797 spaces) CTA rail stations. This group of riders represents a subset of morning inbound CTA riders discussed earlier. The park and ride users are most likely traveling for work purposes (79 percent), are destined to the CBD (78 percent), and use transit frequently (59 percent used the station five or more days per week). This profile is similar to the CTA rail morning inbound users. In general, park and ride travelers own autos, have high incomes, and drive to the station alone. Approximately 90 percent of park and ride users were driving alone.

8.2 Pace Users

8.2.1 Travel Characteristics

Previous CTA survey data summarized demographic and travel characteristics of Pace reverse commuters whose access mode was CTA rail. Analysis of all Pace users in the corridor provides a broader Pace user profile, by including those whose access is not CTA rail. In 1996, Pace conducted several user surveys for a few express bus routes serving primarily the

reverse market in the corridor. The surveyed bus routes include 600, 606, 610, 616, 757 and 767. Pace riders on these routes show a similar profile to Pace riders transferring from CTA.

The percentage of daily work trips on these routes varies from 83 percent of Route 606 serving Woodfield Mall area to 96 percent on Route 616 serving the industrial areas west of airport. Most respondents indicated that they used the system on a frequent basis (79 to 91 percent use the bus 5 or more times weekly). Almost half of the riders on routes 610 and 767 access the service by automobile. The survey also indicates a majority of riders on route 610 are from Chicago, with a notable amount also from Norridge/Harwood Heights. It is likely those Pace users who lived near the corridor CTA stations drive to River Road Park-and-Ride lot and take the bus to the corridor. According to the Pace survey responses, these respondents prefer Pace instead of driving is because they want to avoid traffic congestion and to reduce auto operating and maintenance costs. The mode of access to Pace express buses serving Prairie Stone is shown in Table 8-12.

Table 8-12: Mode of Access to Pace Express Bus to Sears Prairie Stone

Mode of Access	Percentage
walk only	5%
auto access	47%
used one transit mode to access Pace	36%
used two or more transit modes to access Pace	12%
total	100%

Data Source: 1993 Pace Survey
Note: Routes 610 and 767

8.2.2 Demographics

These Pace riders also indicate a distribution of household income similar to that of the CTA riders – with 36 percent earning less than $25,000 compared with 31 percent earning less than $20,000 according to the CTA survey. However, Pace users headed to Prairie Stone show a relatively higher income when compared to other Pace reverse commuters in the corridor. More than 20 percent of Route 610 respondents report household incomes of more than $75,000 and over 22 percent of Route 767 more than $50,000.

8.3 Summary

According to Metra's 1996 On-board Travel Survey, within the traditional market, Metra riders in the corridor are similar in most ways to their regional counterparts. They are headed to work 92 percent of the time, own cars and drive to Metra. Riders have a high level of education and household income, ride Metra frequently and have used the service for more than a year. Most riders are destined to downtown and are able to walk to their final destination. A huge majority, 92 percent, view Metra as the quickest way to make the trip.

The chief difference between the regional and corridor riders is the mode of access. Corridor riders are more likely to drive to Metra and less likely to walk.

For Metra riders in the reverse market, corridor riders are still similar in most ways to their regional counterparts. They are headed to work 82 percent of the time, most own cars and have a car available for the trip. They have high levels of education and household income, use Metra frequently and have used it for more than a year. More corridor users view Metra as the quickest form of travel than do their regional counterparts.

A comparison of Metra's traditional and reverse markets indicates that reverse market riders of Metra work in similar industries and hold comparable occupations. They have a somewhat higher level of education (76 percent vs. 66 percent college graduates), are younger (58 percent vs. 48 percent under 40 years old), have lower household incomes (38 percent vs. 66 percent exceed $60,000) and own fewer cars (88 percent vs. 98 percent with one or more cars in the household). They are more recent Metra users (17 percent vs. 7 percent have used Metra less than six months) and a majority consider Metra the quickest way to make their trip (74 percent vs. 82 percent).

According to CTA's 1994 Blue Line O'Hare Branch On-board Travel Survey, traditional and reverse market CTA users in the corridor show significant differences in travel characteristics and demographic profiles. Reverse travelers have lower household incomes, (26 percent vs. 10 percent households with income less than $20,000) and own fewer cars (31 percent vs. 8 percent of households with zero cars). Their journeys require transfers much more frequently (75 percent vs. 25 percent with at least one transfer) and thus take a longer time to travel to their final destinations. Traditional CTA riders are typically headed for the CBD. Outbound users come from widely dispersed locations following the CTA bus grids and rail lines from every area of Chicago. Their destinations are more concentrated in a few locations in the corridor.

According to Pace survey data, Pace riders in the corridor cover a broad demographic profile. A small number use an automobile to access express bus service to their worksite. Others include express bus riders who require two or more transfers before arriving at the express bus stop that then travels to their work site.

Among all of the groups evaluated, commuters who live in Chicago, work in the northwest corridor west of O'Hare airport, and commute using a combination of CTA rail and Pace contain the highest proportion of captive riders. Two-thirds of these transit users have no car available to make the trip and almost one-third have household incomes less than $20,000 per year. Their use of transit is exclusively for work purposes and 70 percent transfer two or more times. This subset of transit users in the corridor show the most consistent characteristics of transit dependent users.

Some significant findings from Metra, CTA and Pace on-board travel surveys include:

- Metra users in the corridor are, by and large, choice riders with higher incomes and auto availability than CTA or Pace users;
- Reverse market Metra riders in many ways mirror Metra's traditional market users, with high incomes, high levels of education, and high levels of automobile availability;
- Reverse market CTA rail riders are much different than the CTA's traditional market with lower incomes, less access to autos, and lower levels of education;
- Reverse market CTA rail riders require more transfers to reach their final destination than those in the traditional market;
- Transit riders in the corridor who use both CTA rail and Pace to reach their final destination are the most captive among transit users in the corridor with low incomes and limited auto availability; the majority transfer two or more times to reach their final destination; and
- The vast majority of Metra, CTA, and Pace trips to and from the corridor are for work purposes.

9. Travel Market Segments in the Northwest Corridor

This chapter details several travel submarkets critical to the northwest corridor. The first section provides additional detail on the journey to work trip given its significance as a proportion of total daily trips. In contrast to earlier sections which have also discussed work trips, this section relies principally on 1990 U.S. Census Transportation Planning Package data. The second section details travel associated with O'Hare Airport. O'Hare is the most significant generator of trips in the corridor and also contains the highest concentration of employees. The third section details through trips, those trips that pass through the corridor, but do not have an origin or a destination within the corridor. The last section discusses commercial vehicles.

9.1 Work Trip Travel

According to the CATS 1990 Household Travel Survey, approximately 60 percent of total trips in the northwest corridor are for work related trips. The proportion of work trips soars during the morning and evening peaks. These facts, discussed in detail in Chapter 5, emphasize the need to generate more information on the work trip travel market. The 1990 Census provides extensive detail on work trip travel patterns and the travel mode selected.

The northwest corridor is a net importer of workers. Many more workers head to rather than from the corridor. According to the 1990 Census data, the corridor imports almost 120,000 workers, many from the city of Chicago and suburban Cook County. Together, these locations account for almost 45 percent of workers imported into the corridor (see Table 9-1).

Table 9-1: Number of Imported Workers in 1990

Origin or Destination	Originated From NW Corridor	Destined for NW Corridor	Number of Imported Workers
Corridor Journey to Work Trips	**302,200**	**421,700**	**119,500**
City of Chicago	59,800	82,000	22,200
Suburban Cook County	52,700	84,000	31,300
DuPage County	21,400	49,100	27,700
Other Collar Counties	15,900	54,200	38,300
Northwest Corridor	152,400	152,400	N/A

Data Source: 1990 U.S. Census Transportation Planning Package

The 1990 Census also indicates the significance of auto use for work trips. More than 90 percent of the more than 300,000 work trips originating in the northwest corridor are made by automobile. Approximately 92 percent of the more than 420,000 work trips headed to the

corridor are made by automobile. Transit carries only 7 percent of work trips by residents in the corridor and 5 percent of work trips of those working in the corridor[1].

As shown in Table 9-2 and Table 9-3, the transit mode share declines from east to west. Within the eastern subarea, transit captures 10 percent of work trips headed into the corridor as well as 10 percent of work trips by residents. In the central subarea, transit captures just 2 percent of work trips by employees in the subarea and 6 percent for residents. The western subarea captures the lowest transit share, at just 1 percent of work trips heading to the subarea and 4 percent of those originating in the subarea.

Table 9-2: Mode Choice of Work Trips Originating in Corridor

	Total Work Trips				Mode Share			
Destinations	Eastern Subarea	Central Subarea	Western Subarea	Total	Eastern Subarea	Central Subarea	Western Subarea	Total
Corridor Total	**100,307**	**113,125**	**88,893**	**302,325**	**100%**	**100%**	**100%**	**100%**
– by Auto Mode	86,545	103,860	83,314	273,719	86%	92%	94%	91%
– by Transit Mode	9,992	6,257	3,843	20,092	10%	6%	4%	7%
– by Other Mode	3,770	3,008	1,736	8,514	4%	3%	2%	3%

Data Source: 1990 U.S. Census Transportation Planning Package
Due to rounding, percentages may not add up to 100%

Table 9-3: Mode Choice of Work Trips Destined to the Corridor

	Total Work Trips				Mode Share			
Origins	Eastern Subarea	Central Subarea	Western Subarea	Total	Eastern Subarea	Central Subarea	Western Subarea	Corridor Total
Corridor Total	**172,092**	**205,489**	**44,131**	**421,712**	**100%**	**100%**	**100%**	**100%**
– by Auto Mode	150,126	198,176	42,133	390,435	87%	96%	95%	93%
– by Transit Mode	17,278	3,320	631	21,229	10%	2%	1%	5%
– by Other Mode	4,688	3,993	1,367	10,048	3%	2%	3%	2%

Data Source: 1990 U.S. Census Transportation Planning Package
Due to rounding, percentages may not add up to 100%

Despite a relatively low market share in the corridor, transit carries a significant portion of work trips to and from select locations. Transit consistently carries more than 50 percent of work trips originating in each of the corridor's subareas to the Chicago CBD. This destination accounts for the vast majority of transit trips made by those living in the corridor. Transit also carries a relatively high proportion of work trips made by residents of the city of Chicago headed to locations within the corridor. This is particularly true for those headed to the eastern subarea, where the transit share is almost one-quarter of work trips. Detail on transit share is provided in the subarea discussion.

[1] Care should be taken when comparing transit journey-to-work trips with transit boardings. Transit journey-to-work trips can be regarded as linked trips and their modal usages are associated with the transit mode bearing the longest distance. Transit boardings for the corridor, discussed in Chapter 7, are unlinked transit trips.

9.1.1 Work Trip Travel Patterns and Mode Choice by Subarea

Travel patterns and mode choice vary significantly among the three subareas in the corridor. The eastern subarea shows strong connections to the city of Chicago and Cook County with the highest transit mode share of the three subareas. The central subarea shows strong connections to both the south and east with a lower transit mode share. The western subarea shows strong connections both to the east and west with the lowest transit mode share. Each of the three subareas is discussed in greater detail below. Within each of these subareas, travel patterns are distinguished between residents of the subarea making work trips and persons traveling to the subarea for work. Exhibit 9-1 displays work trips flows from each subarea, while Exhibit 9-2 shows the work trips flows to each of the subareas.

Eastern Subarea

The eastern subarea has a high concentration of employment as indicated by the large number of persons headed to the corridor for employment; see Figure 9-1 and Figure 9-2. Many residents of the eastern subarea work in the city of Chicago. Chicago also serves as a source of workers with approximately 32 percent of workers in the eastern subarea traveling from Chicago. Other significant sources of workers include the northwest corridor itself with 28 percent and suburban Cook County at 23 percent. In total, 38 percent of residents in the eastern subarea work within the corridor and 34 percent work in the city of Chicago, followed by suburban Cook at 21 percent.

Figure 9-1:
Work Trips from the Eastern Subarea

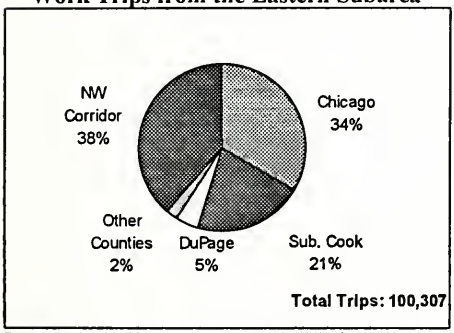
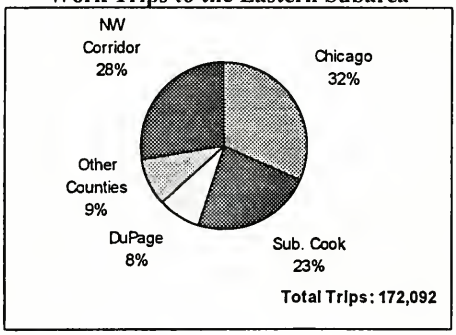


Figure 9-2:
Work Trips to the Eastern Subarea



Data Source: 1990 U.S. Census Transportation Planning Package

Among work trips originating in the eastern subarea approximately 86 percent are made by automobile and 10 percent by transit. CTA rail carries the largest portion of transit trips, followed by Metra and finally, Pace and CTA bus. The transit share is highest among those trips headed to the Chicago CBD where transit carries more than 50 percent of the total. By contrast, transit carries just 3 percent of trips headed to other destinations within the corridor.

Table 9-4: 1990 Work Trips – From the Eastern Subarea

Destination	Total Work Trips	Total Auto trips	TRANSIT TRIPS					Others
			Bus	CTA Rail	Metra	Total Transit	Transit Share	
CBD	12,018	5,877	603	2,927	2,553	6,083	51%	58
North Chicago (excl. NW)	16,741	15,121	763	437	165	1,365	8%	255
South Chicago	4,978	4,151	208	350	206	764	15%	63
CITY OF CHICAGO (excl. NW)	**33,737**	**25,149**	**1,574**	**3,714**	2,924	**8,212**	**24%**	**376**
North Suburban Cook (excl. NW)	18,199	17,528	375	34	40	449	2%	222
South Suburban Cook	2,743	2,585	47	39	17	103	4%	55
DuPage (excl. NW)	4,528	4,429	17	12	20	49	1%	50
Kane	418	340	23	18	37	78	19%	-
Lake	1,404	1,380	-	9	8	17	1%	7
McHenry	152	145	-	-	7	7	5%	-
Will	105	98	-	-	-	-	0%	7
NW-Eastern subarea	28,190	24,468	610	214	36	860	3%	2,862
NW-Central subarea	9,832	9,449	142	15	35	192	2%	191
NW-Western subarea	999	974	25	-	-	25	3%	-
Northwest Corridor	**39,021**	**34,891**	**777**	**229**	**71**	**1,077**	**3%**	**3,053**
TOTAL	**100,307**	**86,545**	2,813	4,055	3,124	9,992	**10%**	**3,770**

Data Source: 1990 U.S. Census Transportation Planning Package

Among work trips headed to the eastern subarea approximately 87 percent are made by automobile and 10 percent by transit. The highest transit share is 29 percent for trips originating on the south side of Chicago. By contrast, transit carries just 2 percent of work trips headed to the eastern subarea which begin within the northwest corridor. Metra provides a limited role in serving trips to the eastern subarea with Pace, CTA bus and CTA rail together carrying almost 85 percent of the transit total.

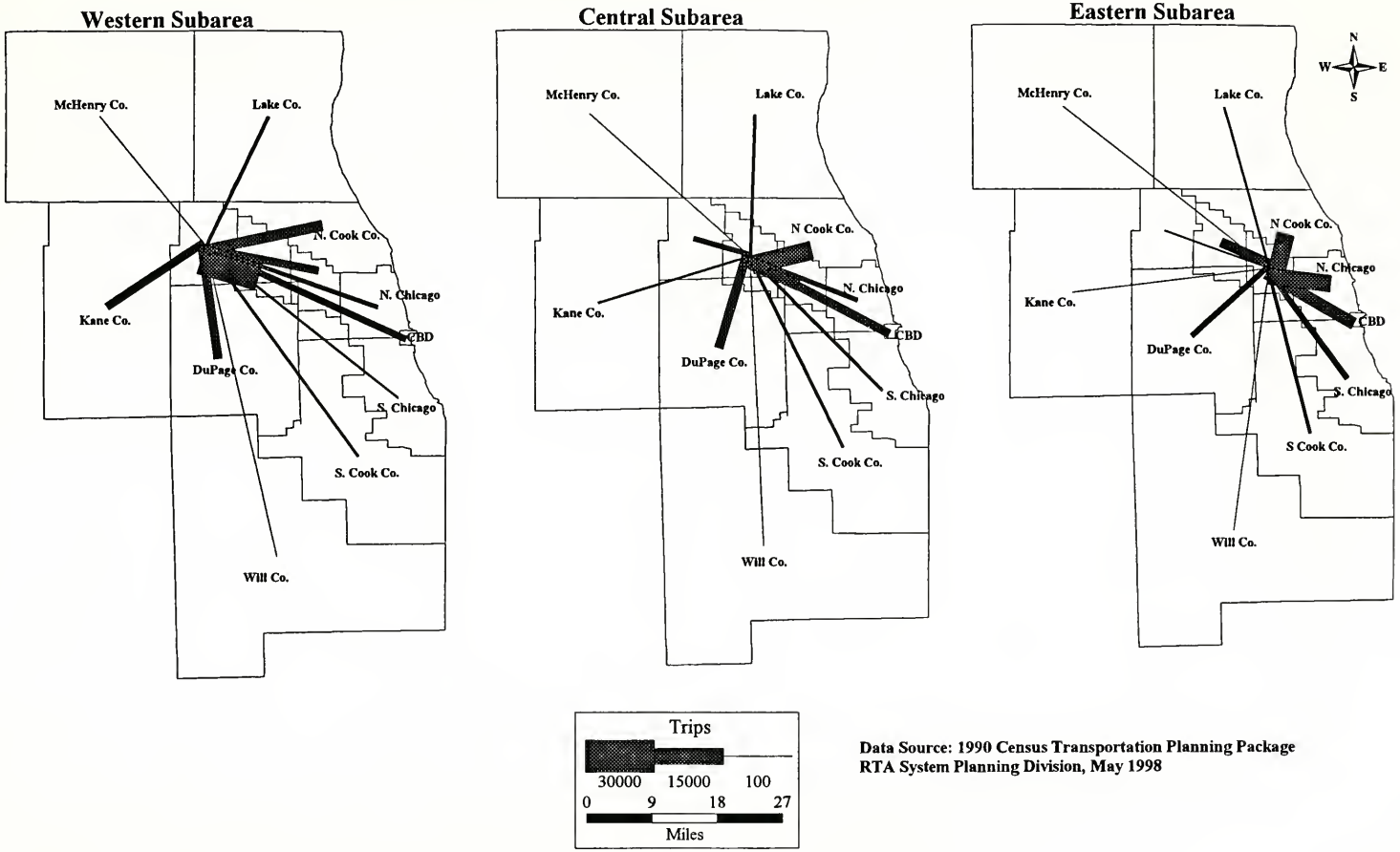
Table 9-5: 1990 Work Trips – To the Eastern Subarea

Origin	Total Work Trips	Total Auto trips	TRANSIT TRIPS					Others
			Bus	CTA Rail	Metra	Total Transit	Transit Share	
CBD	291	91	14	64	-	78	27%	22
North Chicago	34,874	27,008	4,155	2,919	294	7,368	21%	498
South Chicago	19,770	13,797	3,809	1,508	328	5,645	29%	328
CITY OF CHICAGO	**54,935**	**40,996**	**7,978**	**4,491**	**622**	**13,091**	**24%**	**848**
North Suburban Cook (excl. NW)	27,700	26,313	394	170	302	866	3%	521
South Suburban Cook	11,463	10,254	446	114	567	1,127	10%	82
DuPage (excl. NW)	14,329	13,991	61	25	158	244	2%	94
Kane	3,025	2,897	20	6	86	112	4%	16
Lake	7,475	7,146	2	6	260	268	4%	61
McHenry	2,763	2,537	8	-	216	224	8%	2
Will	2,418	2,173	22	9	178	209	9%	36
NW-Eastern subarea	28,190	24,468	610	214	36	860	3%	2862
NW-Central subarea	12,777	12,407	40	-	185	225	2%	145
NW-Western subarea	7,017	6,944	-	-	52	52	1%	21
Northwest Corridor	**47,984**	**43,819**	**650**	**214**	**273**	**1,137**	**2%**	**3,028**
TOTAL	**172,092**	**150,126**	**9,581**	**5,035**	**2,662**	**17,278**	**10%**	**4,688**

Data Source: 1990 U.S. Census Transportation Planning Package

Exhibit 9-1

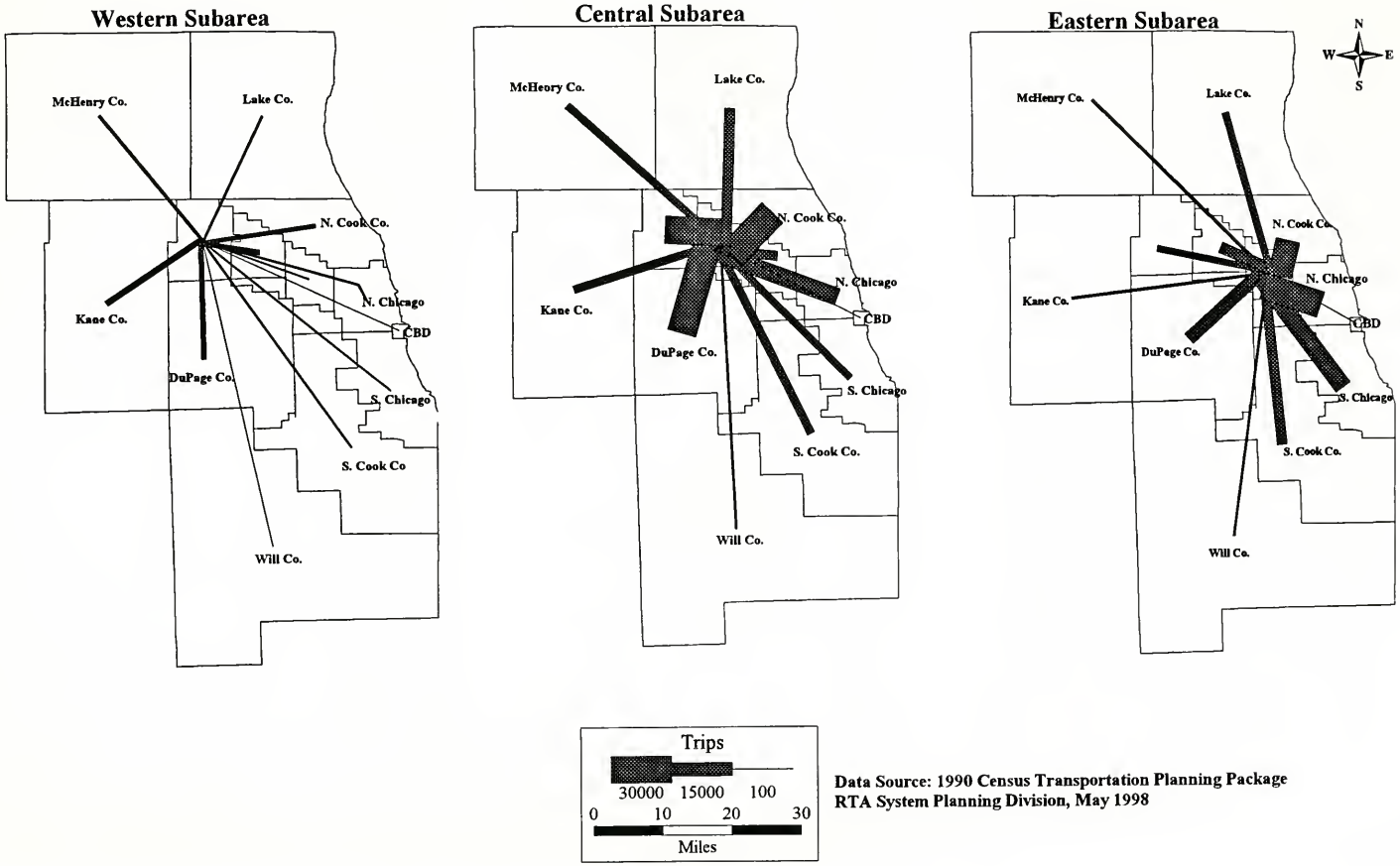
1990 Journey-to-Work FROM the Northwest Corridor



Data Source: 1990 Census Transportation Planning Package
RTA System Planning Division, May 1998

Exhibit 9-2

1990 Journey-to-Work TO the Northwest Corridor



Data Source: 1990 Census Transportation Planning Package
RTA System Planning Division, May 1998

Central Subarea

The central subarea also has a high concentration of employment as indicated by the more than 200,000 work trips headed to the subarea compared to just 113,000 resident workers who begin their trip in this same subarea. The connection to the city of Chicago is still strong, although not to the same degree as the eastern subarea. More than 14 percent of central subarea residents travel to the city of Chicago for employment, while the city of Chicago serves as the source of 12 percent of work trips to the central subarea. Residents of the northwest corridor also serve as a major source of employees in the central subarea as approximately 40 percent of central subarea employees also live within the corridor. More than half of the residents of the central subarea also work at other locations within the corridor. Other sources of employees include suburban Cook County at 19 percent of the total and DuPage County at 15 percent.

Figure 9-3:
Work Trips from the Central Subarea

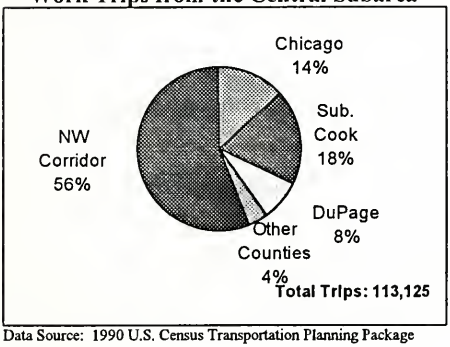
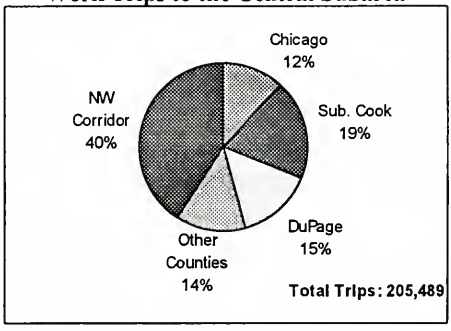


Figure 9-4:
Work Trips to the Central Subarea



Data Source: 1990 U.S. Census Transportation Planning Package

Almost 92 percent of work trips beginning in the central subarea are made by automobile. Transit carries just 6 percent of these trips, of which more than 85 percent are made on Metra. Most transit users in the central subarea are headed to the Chicago CBD and use Metra to reach their destination. More than 50 percent of the total work trips headed to the Chicago CBD are made on transit. By contrast, transit carries just 1 percent of work trips headed to locations within the northwest corridor.

Table 9-6: 1990 Work Trips – From the Central Subarea

Destination	Total Work Trips	Total Auto trips	TRANSIT TRIPS					Others
			Bus	CTA Rail	Metra	Total Transit	Transit Share	
CBD	8,398	3,483	94	263	4,490	4,847	58%	68
North Chicago (excl. NW)	4,874	4,445	23	28	307	358	7%	71
South Chicago	2,341	2,029	28	46	228	302	13%	10
CITY OF CHICAGO (excl. NW)	**15,613**	**9,957**	**145**	**337**	**5,025**	**5,507**	**35%**	**149**
North Suburban Cook (excl. NW)	18,515	18,153	78	7	15	100	1%	262
South Suburban Cook	2,206	2,191	-	-	6	6	0%	9
DuPage (excl. NW)	9,126	8,922	51	-	47	98	1%	106
Kane	1,323	1,281	-	-	31	31	2%	11
Lake	2,517	2,505	-	-	6	6	0%	6
McHenry	295	295	-	-	-	-	0%	0
Will	204	185	8	-	11	19	9%	0
NW-Eastern subarea	12,777	12,407	40	-	185	225	2%	145
NW-Central subarea	45,709	43,274	176	-	38	214	<1%	2221
NW-Western subarea	4,840	4,690	31	-	20	51	1%	99
Northwest Corridor	**63,326**	**60,371**	**247**	**-**	**243**	**490**	**1%**	**2,465**
TOTAL	**113,125**	**103,860**	**529**	**344**	**5,384**	**6,257**	**6%**	**3,008**

Data Source: 1990 U.S. Census Transportation Planning Package

More than 96 percent of work trips headed to the central subarea are made by automobile. Transit carries less than 2 percent of this market with vast majority using bus services. Transit carries the highest share among work trips which originate in the Chicago CBD and on the south side of Chicago. In total, transit carries 9 percent of work trips originating in the city of Chicago.

Table 9-7: 1990 Work Trips – To the Central Subarea

Origin	Total Work Trips	Total Auto trips	TRANSIT TRIPS					Others
			Bus	CTA Rail	Metra	Total Transit	Transit Share	
CBD	247	202	9	16	12	37	15%	8
North Chicago	17,582	15,932	882	315	104	1,301	7%	349
South Chicago	6,876	5,966	574	229	35	838	12%	72
CITY OF CHICAGO	**24,705**	**22,100**	**1,465**	**560**	**151**	**2,176**	**9%**	**429**
North Suburban Cook (excl. NW)	30,702	29,822	195	44	62	301	1%	579
South Suburban Cook	8,568	8,306	65	32	106	203	2%	59
DuPage (excl. NW)	29,886	29,736	16	9	21	46	0%	104
Kane	7,722	7,677	16	-	7	23	0%	22
Lake	10,812	10,736	-	-	32	32	0%	44
McHenry	7,215	7,176	-	-	31	31	0%	8
Will	2,032	2,000	13	-	13	26	1%	6
NW-Eastern subarea	9,832	9,449	142	15	35	192	2%	191
NW-Central subarea	45,709	43,274	176	-	38	214	<1%	2221
NW-Western subarea	28,306	27,900	49	-	27	76	<1%	330
Northwest Corridor	**83,847**	**80,623**	**367**	**15**	**100**	**482**	**1%**	**2,742**
TOTAL	**205,489**	**198,176**	**2,137**	**660**	**523**	**3,320**	**2%**	**3,993**

Data Source: 1990 U.S. Census Transportation Planning Package

Western Subarea

In contrast to the central and eastern subareas, the western subarea has more workers leaving than entering. More than half the residents of the western subarea work at other locations within the northwest corridor. Almost half of the employees in the western subarea also live in the corridor. Other significant sources of employees include suburban Cook at 12 percent, DuPage at 11 percent, and other counties, including Kane and McHenry. The city of Chicago still serves as a major destination of residents of the western subarea, but just 6 percent of workers in the western subarea travel from Chicago.

Figure 9-5
Work Trips from the Western Subarea

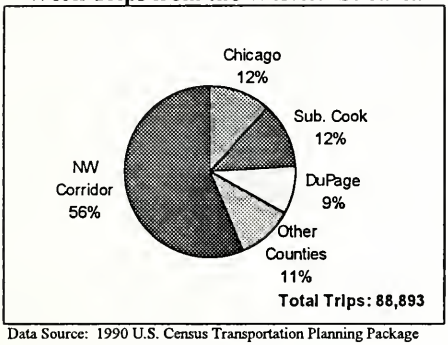
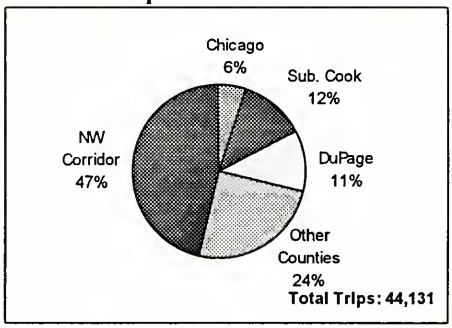


Figure 9-6
Work Trips to the Western Subarea



Data Source: 1990 U.S. Census Transportation Planning Package

Transit carries just 4 percent of work trips originating in the western subarea. Almost 80 percent of these transit trips are made by persons headed to the Chicago CBD. Again, the transit share for trips to the Chicago CBD is more than 50 percent. Metra commuter rail is the predominant transit provider for work trips from this subarea.

Table 9-8: 1990 Work Trips – From the Western Subarea

Destination	Total Work Trips	Total Auto trips	TRANSIT TRIPS					Others
			Bus	CTA Rail	Metra	Total Transit	Transit Share	
CBD	5,632	2,599	29	101	2,880	3,010	53%	23
North Chicago (excl. NW)	3,291	3,089	5	22	155	182	6%	20
South Chicago	1,535	1,287	27	-	202	229	15%	19
CITY OF CHICAGO (excl. NW)	**10,458**	**6,975**	**61**	**123**	**3,237**	**3,421**	**33%**	**62**
North Suburban Cook (excl. NW)	9,362	9,253	-	9	24	33	0%	76
South Suburban Cook	1,660	1,627	9	-	-	9	1%	24
DuPage (excl. NW)	7,792	7,638	4	-	17	21	0%	133
Kane	6,351	6,157	131	-	27	158	2%	36
Lake	2,676	2,635	-	-	-	-	0%	41
McHenry	322	313	-	-	9	9	3%	0
Will	173	158	-	-	6	6	3%	9
NW-Eastern subarea	7,017	6,944	-	-	52	52	1%	21
NW-Central subarea	28,306	27,900	49	-	27	76	<1%	330
NW-Western subarea	14,776	13,714	37	-	21	58	<1%	1004
Northwest Corridor	**50,099**	**48,558**	**86**	**-**	**100**	**186**	**<1%**	**1,355**
TOTAL	**88,893**	**83,314**	**291**	**132**	**3,420**	**3,843**	**4%**	**1,736**

Data Source: 1990 U.S. Census Transportation Planning Package

Transit carries less than 700, or just 1 percent, of total work trips destined for the western subarea. About half of these trips originate in the city of Chicago and slightly more than 100 originate within the northwest corridor. In total, transit carries 12 percent of work trips which originate in the city of Chicago and just 1 percent of trips which originate in the corridor. The majority of these trips are made by bus with Metra commuter rail serving a more limited role.

Table 9-9: 1990 Work Trips – To the Western Subarea

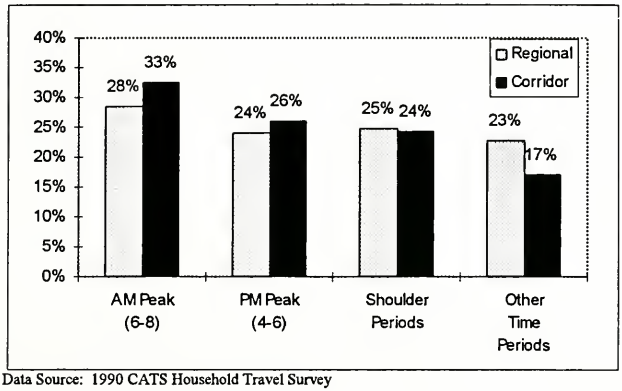
Origin	Total Work Trips	Total Auto trips	TRANSIT TRIPS					Others
			Bus	CTA Rail	Metra	Total Transit	Transit Share	
CBD	18	7	-	-	11	11	61%	0
North Chicago	1,504	1,325	89	43	30	162	11%	17
South Chicago	910	758	84	30	10	124	14%	28
CITY OF CHICAGO (excl. NW)	**2,432**	**2,090**	**173**	**73**	**51**	**297**	**12%**	**45**
North Sub. Cook (excl. NW)	3,734	3,688	14	9	8	31	1%	15
South Suburban Cook	1,731	1,630	46	11	18	75	4%	26
DuPage (excl. NW)	4,844	4,763	-	-	35	35	1%	46
Kane	5,345	5,227	28	-	-	28	1%	90
Lake	2,124	2,096	-	-	-	-	0%	28
McHenry	2,601	2,568	-	-	19	19	1%	14
Will	705	693	-	-	12	12	2%	0
NW-Eastern subarea	999	974	25	-	-	25	3%	0
NW-Central subarea	4,840	4,690	31	-	20	51	1%	99
NW-Western subarea	14,776	13,714	37	-	21	58	<1%	1004
Northwest Corridor	**20,615**	**19,378**	**93**	**-**	**41**	**134**	**1%**	**1,103**
TOTAL	**44,131**	**42,133**	**354**	**93**	**184**	**631**	**1%**	**1,367**

Data Source: 1990 U.S. Census Transportation Planning Package

9.1.2 Time of Day

According to the 1990 CATS Household Travel Survey, a large proportion of corridor work trips occur during the morning and evening peak periods as shown in Figure 9-7. However, a significant proportion of work trips (41 to 47 percent) occur outside the peak periods. More than half of these off-peak work trips occur during the shoulder peak periods of one hour before and after the peak periods, particularly from 8-9 a.m. and 3-4 p.m.

Figure 9-7: Proportion of Trips by Time of Day

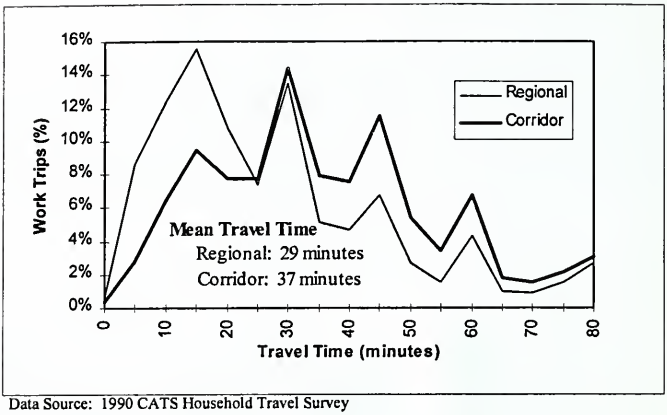


Data Source: 1990 CATS Household Travel Survey

9.1.3 Travel Time

The difference in travel time for work trips between the corridor and region is more pronounced than for all other trip purposes. Work trips in the northwest corridor are, on average, eight minutes, or 28 percent longer than the average for the region. As shown in Figure 9-8, a higher proportion of work trips exceed 35 minutes than for the region. Further analysis of zone to zone auto travel distances shows that longer commute times is attributed to the longer travel distances as well as higher levels of congestion.

Figure 9-8: Comparison of Mean Travel Time



Data Source: 1990 CATS Household Travel Survey

9.2 O'Hare Airport Travel

O'Hare Airport, located in the eastern subarea, is a major activity center in the northwest corridor and accounts for a large number of corridor trips. Its impact on the transportation system is substantial with an estimated 120,000 person trips entering and exiting the airport on a daily basis in 1989. An analysis of groundside airport related travel demand is an essential part of the market analysis. At the Northwest Corridor Employer Workshop conducted earlier in 1998, convenient access to and from O'Hare Airport for business travelers emerged as one of the concerns among the employers.

In 1989, Landrum & Brown, Inc. conducted the Ground Access Study at O'Hare International Airport for the city of Chicago, Department of Aviation. Surveys of airport employees and air passengers were conducted. This analysis focuses primarily on reports and tabulations from this study.

9.2.1 Total Travel Market

Four types of travelers travel to O'Hare Airport: air passengers, visitors, airport employees, and airline employees. In 1989, the total number of boardings and alightings at the airport, excluding interline connections, was estimated at 23.5 million, which corresponds to roughly 32,000 daily person trips entering the airport from the region as air passengers[2]. About 61 percent of all O'Hare flights made in 1989 were interline transfers according to the 1989 air passenger survey. Enplanements are typically given in total air trips including interline passenger trips and must be adjusted to get one way, non-transfer air trips, the kind that are important in describing ground travel to O'Hare for this study. In addition to air passenger

[2] O'Hare Airport Ground Travel Survey, Technical Report SP90-06, CTA Strategic Planning Department, 1990.

trips, the total number of visitors was estimated at 10,000 according to the survey results of 0.3 visitors per air passenger.

A significant number of work trips are also made to O'Hare. In 1989, 33,000 persons were employed at O'Hare although not all of these workers report on any given day. On an average weekday, 20,000 work trips are made to O'Hare. Approximately 42 percent of these workers are airport employees and 58 percent are airline employees, including both flight crew and non-flight crew personnel[3]. Together air passengers, visitors and all workers account for approximately 62,000 trips to O'Hare Airport on an average day. Trips to the airport by the four classes of travelers are summarized in Table 9-10.

Table 9-10: Estimates of Total Trips to O'Hare Airport

Airport Related Travelers	Daily Trips in 1989	Percentage
Airport Employees	8,400	14%
Airline Employees	11,600	19%
Air Passengers	32,000	51%
Visitors	10,000	16%
TOTAL	**62,000**	**100%**

Data Source: Landrum and Brown Terminal Support Work Group Reports, 1990
O'Hare Airport Ground Travel Survey, CTA, 1990
O'Hare Intermodal Station Study Final Feasibility Report, CATS, 1995

Air travel has increased in the region since 1989 with O'Hare Airport producing a total of 69 million enplanements in 1996[4]. Using the same approach and factors used to calculate one way, non-transfer air trips from total enplanements in 1989, the total air passengers heading to O'Hare in 1996 has increased to about 37,000, up from 32,000 in 1989. The number of private jobs at the airport has also increased 20 percent from 1989 to 1996 based on Where Workers Work estimated by Illinois Department of Employment Security. Although for the purposes of this study, the 1989 report will continue to serve as the principal source of data, it is important to note that the number of person trips to the airport between 1989 and 1996 has likely increased more than 15 percent.

9.2.2 Travel Patterns

Survey data from Landrum and Brown was available for further analysis[5]. A total of 8,121 surveys were collected representing air passengers and workers destined to O'Hare. These survey records are presented in both tabular and geographic form. The surveys are not weighted and thus they do not correspond to the totals presented in Table 9-10.

Exhibit 9-3 displays the map produced from the survey data by Landrum and Brown showing the origins of air passenger as well as workers destined to O'Hare. Most air passengers begin

[3] O'Hare Intermodal Station Study Final Feasibility Report for CATS, February 1995, T.Y Lin International/BASCOR, Inc. JHK, Perkins and Will,.
[4] Wall Street Journal Almanac, 1998, Random House, NY, NY.
[5] Landrum and Brown, *Terminal Support Work Group Report #2,* November 1990.

their trip in the north suburbs, DuPage County, the northwest suburbs, or downtown Chicago. Workers of all types employed at the airport, originate their trips in a large geographic area extending from downtown Chicago, through the near north and northwest side of the city of Chicago, up to and through the northwest corridor.

Tabulations of these same trip origins from the Terminal Support Work Group Report #2 are summarized in Table 9-11. The city of Chicago accounts for one third of the total airport bound trips. More than half of all air passengers (58 percent) and half of all workers (57 percent) come from DuPage County, the north or the northwest suburbs. Air passengers are generally well dispersed throughout the region whereas workers have more definitive origins. However, the origin of work trips to the airport varies by the type of employee according to the survey. Airline employees are more likely to come from Chicago's north side or the suburbs while airport workers are primarily from Chicago, along the CTA rail and bus routes.

As indicated in Table 9-11, the northwest corridor represents 14 percent of the total daily air passengers and 22 percent of workers headed to O'Hare or 17 percent of all trips headed to the airport. Based on the regional total of 62,000 person trips headed to O'Hare on a daily basis in 1989, over 10,000 of these begin in the northwest corridor.

Table 9-11: Originating City/County for O'Hare Trips

Airport Bound Trips by Origin District						
ORIGIN DISTRICT	*Air Passengers*		*Airport/Airline Employees*		*Total*	
	# of resp.	*%*	*# of resp*	*%*	*# of resp*	*%*
Northwest Corridor	**717**	**14%**	**672**	**22%**	**1,389**	**17%**
City of Chicago (excl. NW)	1581	31%	1042	34%	2623	32%
North Suburban Cook (excl. NW)	860	17%	479	16%	1,339	16%
DuPage (excl. NW)	666	13%	314	10%	980	12%
Kane	178	4%	87	3%	265	3%
Lake & McHenry	707	14%	288	9%	995	12%
South Suburban Cook & Will	336	7%	194	6%	530	7%
TOTAL	**5,045**	**100%**	**3,076**	**100%**	**8,121**	**100%**

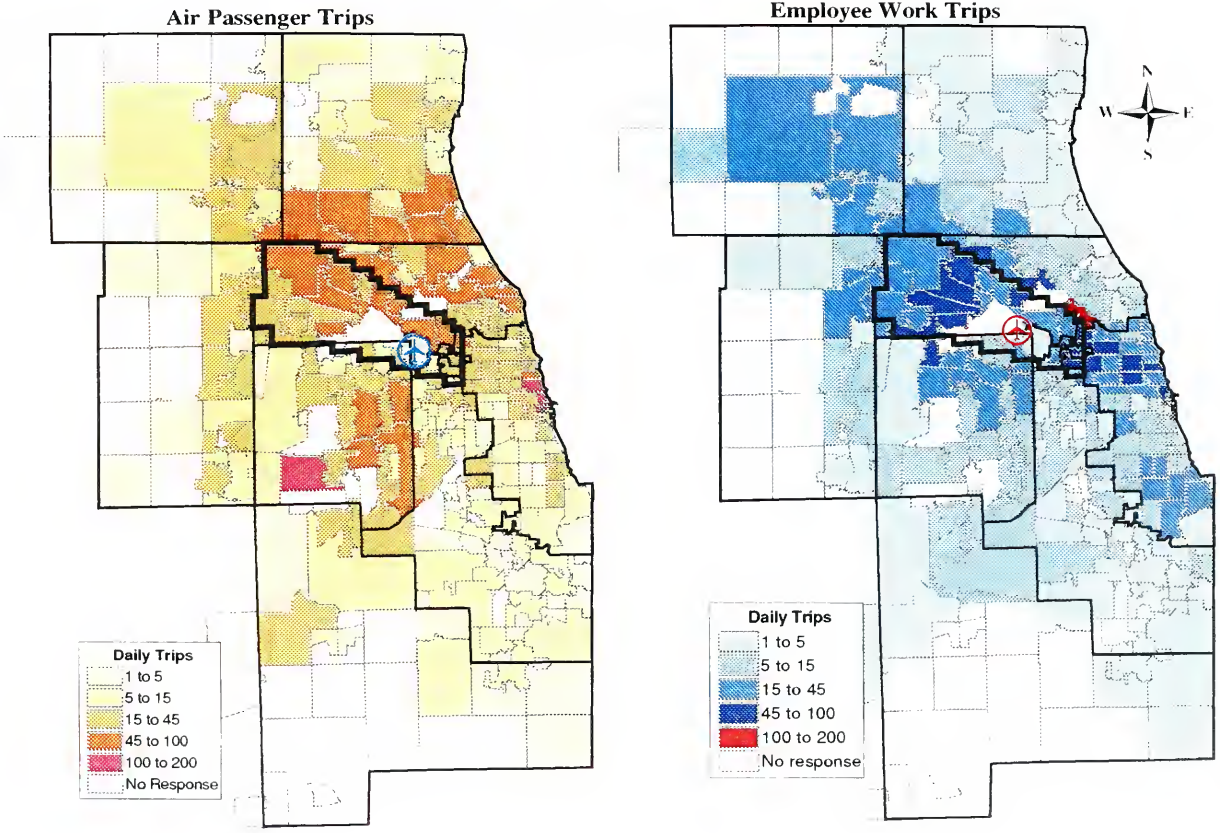
Data Source: Landrum and Brown, *Terminal Support Work Group Report #2,* 1990.

9.2.3 Access Modes To O'Hare Airport

Automobile travel accounts for the vast majority of travel to O'Hare. Tabulations on the mode of access to O'Hare were summarized by Landrum & Brown, Inc. based on its 1989 survey (see Table 9-12). The tabulations on the mode of access to O'Hare substantiate differences between the air passengers and employees. In particular, the use of a private vehicle for ground access is relatively low among air passengers but high for work trips. CTA rail serves a relatively small portion of air passengers, airline flight crew and non-flight crew employees. However, CTA rail does carry a high proportion of airport employees at 18 percent of the total.

Exhibit 9-3

1989 ORIGINS OF O'HARE TRIPS BY ZIP CODE



Data Source: 1989 Landrum and Brown
Employees include Airport and Airline (Flight and Non-Flight) Crew

RTA System Planning Division, May 1998

Table 9-12: Access Modes Used for O'Hare Trips

Access Mode	Air Passengers	Airport Employees	Airline Flight Crew	Airline Non-Flight Crew
Airport Bus	7%	3%	5%	1%
CTA Subway	4%	18%	5%	3%
Private Vehicle	46%	79%	88%	96%
Courtesy Vehicles	4%	0%	2%	
Rental Car/Shuttle	11%	0%		
Prearranged Ride	16%	0%		
Taxi	12%			
Total	100%	100%	100%	100%

Data Source: Landrum and Brown, *Terminal Support Work Group Report #2*, 1990.

9.2.4 Access Routes To O'Hare Airport

Tabulations on the route used to drive to O'Hare are also summarized in Table 9-12 Table 9-13. This information is grouped into two categories, persons who travel to O'Hare from north/south roadways, and persons who travel to O'Hare using east/west roadways. Multiple answers were permitted on the survey resulting in total responses that exceed 100 percent.

Access routes to O'Hare show a clear orientation toward east west routes across all classes of travelers, for both expressways and arterials. East-west routes account for almost twice the number of trips as the north-south routes. Clear differences exist in route choice between air passengers and all workers. Air passengers are likely to use east-west routes but generally travel from all directions. Airport employees are more likely to use the Kennedy Expressway, Irving Park Road and Mannheim Road. Sixty-three percent of airport employees who drive use the Kennedy Expressway as part of their approach route, a figure consistent with the high proportion of workers who reside in Chicago. For airline employees, the Northwest Tollway and Higgins Road are preferred access routes to the airport.

Table 9-13: Access Routes Used for O'Hare Trips

Access Route	Air Passengers	Airport Employees	Airline Flight Crew	Airline Non-Flight Crew
East-West Direction	**53%**	**100%**	**81%**	**70%**
Kennedy Expressway	28%	63%	10%	10%
Northwest Tollway	19%	5%	25%	15%
Higgins Road	2%	7%	34%	22%
Touhy Avenue	2%	3%	12%	10%
Irving Park Road	2%	22%	1%	13%
North-South Direction	**42%**	**38%**	**39%**	**47%**
Tri-State Tollway	33%	8%	18%	14%
Mannheim Road	9%	27%	4%	11%
Mt. Prospect Rd	0%	0%	9%	7%
York/Elmhurst Road	1%	3%	9%	15%
Others	12%	0%	0%	4%

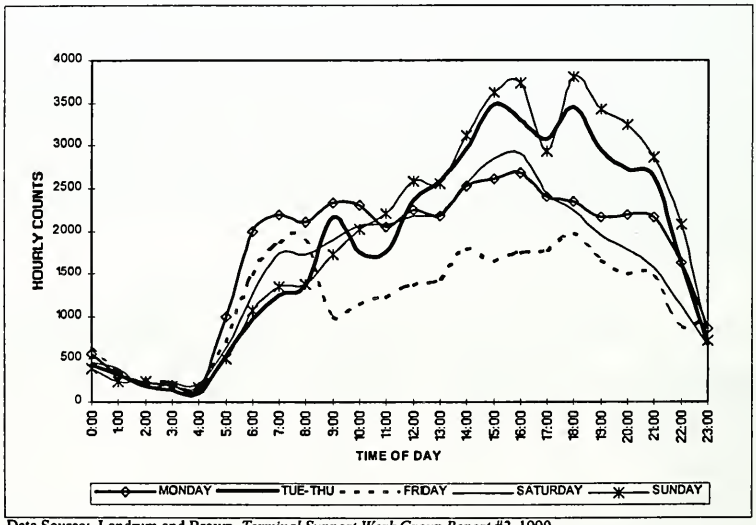
Note: Multiple answers were allowed. Data Source: Landrum and Brown, *Terminal Support Work Group Report #2*, 1990

9.2.5 Travel by Time of Day

Time of day travel to/from airport is an important component in determining whether airport bound trips contribute to roadway capacity problems. A traffic count program was conducted by Landrum & Brown, Inc. as a part of the Ground Access Study at O'Hare airport. Three survey locations on I-190 west of the interchange with Bessie Coleman Drive are analyzed for the two-week period from August 13 through September 1, 1989.

Figure 9-9 displays the average hourly traffic volumes for vehicles exiting the airport by day of week. The peaks are in the late afternoon and early evening periods all days of the week. Sundays have the highest vehicle count, with a peak of 3,800 vehicles per hour at 6 p.m. in the evening. The Sunday peak, except for a dip at 5 p.m. is broad, stretching from 2 p.m. to 8 p.m. with counts upwards of 3,500 vehicles per hour. The traffic pattern for Monday indicates an almost uniform rate of arrival (2,500 vehicles/hr) between 5 a.m. and 9 p.m. Of the weekday counts, Tuesday through Thursday show a sharp evening peak, reflective of weekday commuters returning home after work.

Figure 9-9: Traffic Exiting From O'Hare Airport – I-190 Eastbound

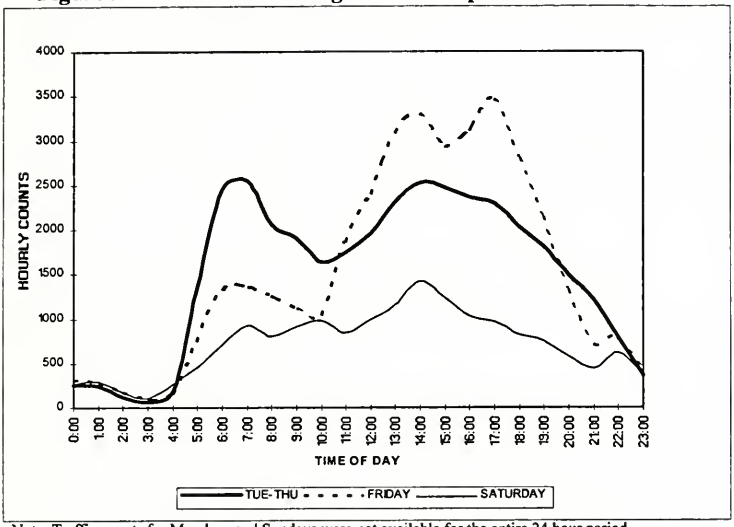


Data Source: Landrum and Brown, *Terminal Support Work Group Report #2*, 1990

Figure 9-10 displays the traffic volumes entering the airport during the survey period. The highest traffic volumes are observed on Fridays, where the peak stretches through the afternoon and early evening hours with volume of up to 3,500 vehicle trips per hour. Although it is difficult to draw conclusions from this data, it indicates more air passengers fly

out of O'Hare airport on Friday afternoons. For typical weekdays, both morning and evening peak hours experience a similar level of traffic with over 2,600 vehicles per hour. The trend for Saturday is relatively uniform through the day with counts in the range of 1,000 to 1,500 vehicles per hour.

Figure 9-10: Traffic Entering O'Hare Airport – I-190 Westbound



Note: Traffic counts for Mondays and Sundays were not available for the entire 24 hour period.
Data Source: Landrum and Brown, *Terminal Support Work Group Report #2*, 1990

This time of day travel to and from O'Hare Airport reinforces perceptions about the travel to and from the airport. Air passenger trips are dominant on Mondays, Fridays, and weekends while commuter trips are more apparent Tuesdays through Thursdays. The evening peak is pronounced in both directions and lasts more than five hours. This peak period traffic contributes to congestion on the Northwest Tollway. According to Tri-State interchange traffic movements, 8 to 12 percent of I-190 traffic is connected to the Northwest Tollway.

9.3 Through Trips

Earlier sections have discussed passenger vehicle trips originating from or destined to the corridor which totaled almost 2.3 million in 1990, or 15 percent of regional trips. Trips traveling through the corridor will also affect the transportation system. This section will examine the degree to which through trips play a role in the corridor. The CATS 1990 Household Travel Survey (HHTS) is the primary source of data for this analysis. This section will use the weighting methodology discussed earlier which is employed in the HHTS to provide an estimate of total trips. The HHTS data does not include trips made by persons who live outside the six-county region.

9.3.1 Regional Through Trips

An examination of the layout and orientation of the major arterials and expressways within and surrounding the northwest corridor provides a means to estimate the proportion of through trips likely to connect the districts in the region. This approach is displayed in Exhibit 9-4. This method of estimation is general and is intended only to provide a rough estimate of how these trips will affect the corridor. As an example, of trips bound from southern McHenry County to northern Cook County, several potential routes traverse the northwest corridor: Algonquin Road to Golf Road, Higgins Road to Oakton Road, or Routes 25, 31 and 47 to the Tollway and Golf Road. The most direct route between the two districts appears to be Northwest Highway to Dempster Road. Based on these potential routes, the probability of through trips is estimated at 30 to 50 percent. This same methodology is employed for each geographic pair of districts. Table 9-14 details estimates of total through trips between districts.

Table 9-14: Range of Regional Through Trips by Direction

Total Traffic Flows between Districts	E --> W OR N --> S	W --> E OR S --> N	Probability of Through Trips
East-West Direction	**5,720**	**6,020**	
Between S. McHenry and N. Suburban Cook	810	1,060	30-50%
Between S. McHenry and N. Chicago/CBD	1,230	1,280	30-50%
Between N. Kane and N. Suburban Cook	620	870	60-90%
Between N. Kane and N. Chicago/CBD	3,060	2,810	60-90%
East-West Direction West of I-290	**2,380**	**2,330**	
Between S. McHenry and DuPage	2,380	2,330	80-95%
North-South Direction	**11,820**	**11,940**	
Between Lake and DuPage	11,820	11,940	90-100%

Data Source: Estimated from 1990 CATS Household Travel Survey

The total estimated through trips are presented in Table 9-15 with an upper and lower bound. For the eastern subarea, the total daily east-west through trips are estimated in the range of 2,800-4,400 for each direction. According to estimates of traffic volumes across screenlines, these through trips represent just 2 to 3 percent of the total traffic. For the western subarea, through trips are estimated at 4,700 to 6,700 or 3 to 5 percent of the total east-west traffic.

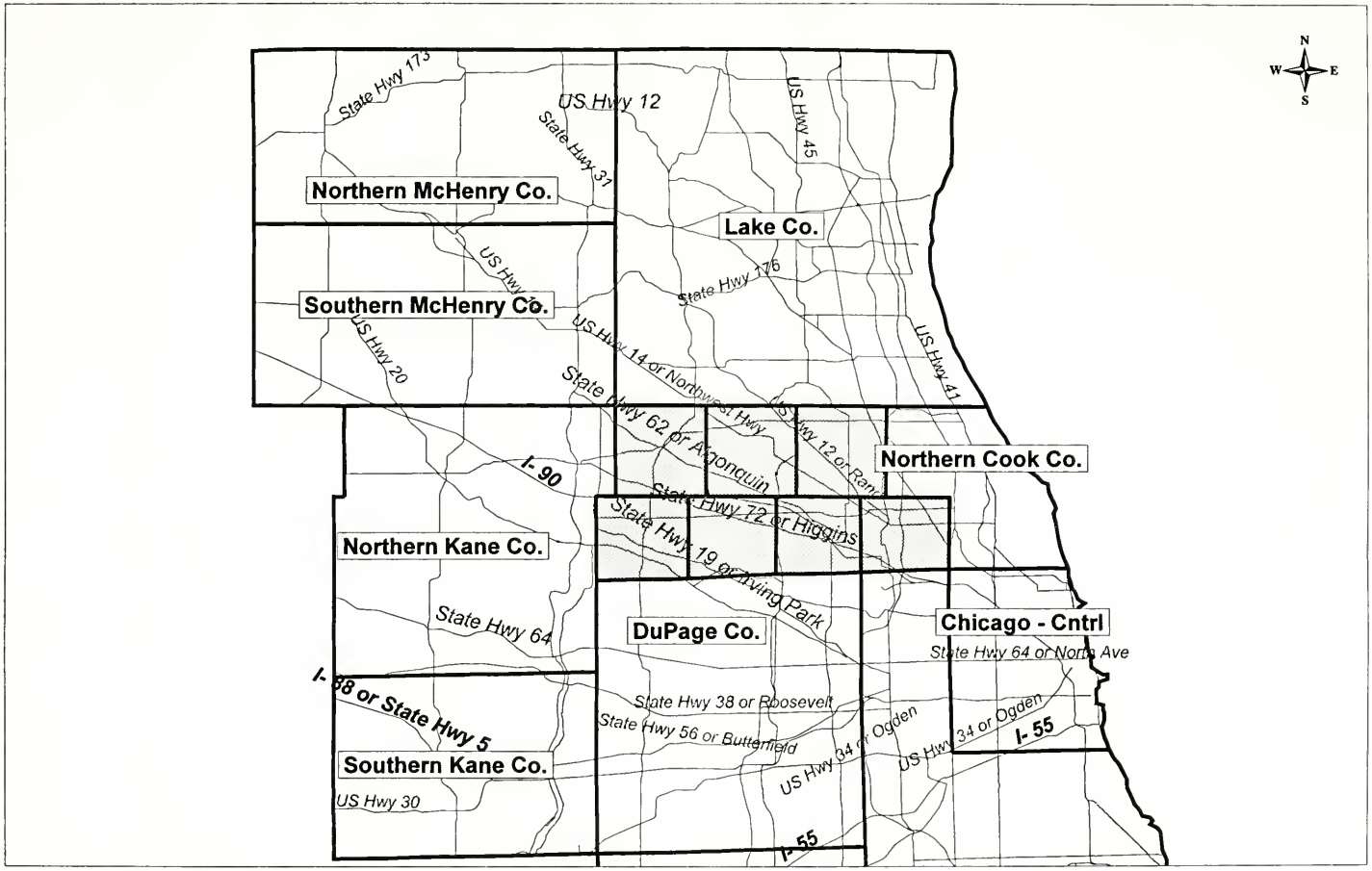
Table 9-15: Estimates of Regional Through Trips

Estimated Through Trips	E --> W OR N --> S	W --> E OR S --> N
East-West Direction	2,800 - 4,300	2,900 - 4,400
East-West Direction West of I-290	1,900 - 2,300	1,900 - 2,200
North-South Direction	10,600 - 11,800	10,800 - 11,900

Data Source: Estimated from 1990 CATS Household Travel Survey

Exhibit 9-4

Boundaries for Through Trip Analysis



Data Source: CATS Household Travel Survey

RTA System Planning Division, May 1998

9.3.2 Interstate Through Trips

In addition to through trips captured by the HHTS data, some trips which pass through the corridor will be made by persons living outside the six-county region. Unfortunately, a reliable source for this data is not readily available. However, the survey data from the Tollway Authority indicates for the section of the Northwest Tollway in the study area, more than 99 percent of both weekday and weekend trips begin and end within the six county region. Thus it may be said that the section of the Northwest Tollway in the corridor serves almost exclusively travelers from the six-county region[6].

9.4 Commercial Vehicle Traffic

Commercial vehicles make up a limited portion of total traffic in the northwest corridor. Commercial traffic is defined as single unit or multi-unit vehicles. Examples include tractor-trailers, six-tire vehicles, three axle trucks, buses, and multi-unit trucks. This vehicle type is more common on the corridor's expressways and on a limited number of arterials near concentrations of manufacturing and light industry. Few expressways experience commercial traffic volumes which exceed 10 percent of the total volume. Commercial traffic on arterials is generally less than 5 percent of the total.

The expressway system in the corridor serves as a part of a regional and national network of highways that provide routes for long-distance shipping. Roadways in the corridor important to this network include I-90, I-294, and I-290/IL 53. This network primarily serves long-distance commercial trips. Traffic on expressways and arterials not within this network is more likely related to local distribution.

Data resources on commercial traffic in the corridor include publications from ISTHA and CATS. Both of these resources provide data on commercial vehicle traffic as a proportion of total traffic. The tollway provides figures on an annual basis, while CATS provides average annual daily traffic volumes and proportions for specific roadways based on counts provided by the Illinois Department of Transportation.

9.4.1 Expressways

Commercial vehicle traffic is relatively moderate throughout the expressway system in the corridor and rarely exceeds 10 percent of the total. Table 9-16 lists the major expressways in the corridor by the proportion of commercial vehicles. Expressways are grouped into three

[6]This result must be tempered with the understanding that there may be a non-response bias on survey respondents who are passing through the region; these persons may not be well represented in the survey. Also, the survey data was collected between 7 a.m. and 7 p.m., an interval of time that may be avoided by persons making interstate through trips; in other words, they may choose to traverse the region in earlier morning, evening or through nights.

categories based on commercial volumes: light, moderate/heavy, and heavy. Those classified as light/moderate include all expressways with volumes of 5 percent or less, those with 5 to 10 percent as moderate/heavy and finally, those with more than 10 percent as heavy. Tollway data is available only at tollbooth collection points, while IDOT data is more continuous.

The proportion and total volume of commercial traffic declines on I-90 from west to east. The decrease in the proportion of commercial traffic is due to the combined effect of increasing auto traffic and decreasing commercial traffic. Available data indicates that much of the long distance commercial traffic in the corridor uses I-90 to access either I-294 or I-290. This movement suggests the possibility of routes intended to avoid congestion on I-90. The proportion of commercial vehicles on I-90 is more than 15 percent at the study area's western boundary, declining to just 3 percent of the total volume east of I-190.

North-south expressways in the corridor show less variation in commercial volumes. I-294 carries 8 to 9 percent both north and south of I-190. This route provides a connection for long distance north-south movements between Indiana and Wisconsin. The I-290/IL 53 corridor shows volumes of commercial traffic at 8 percent south of I-90, falling to 4 to 5 percent north of I-90. This change at I-90 together with declining commercial volumes on I-90 east of this junction indicates the movement of commercial vehicles from I-90 to I-290/IL 53 or from I-290/IL 53 to I-90. North of I-90, IL 53 ends at Lake Cook Road and does not connect to other expressways. South of I-90, the I-290/IL 53 corridor provides connections to other expressways and as a result, is a more desirable route for longer distance trips.

9.4.2 Arterials

Commercial traffic makes up a small proportion of total traffic on the arterial system. The most significant level of commercial vehicle traffic is found on Busse Road through the industrial areas of Elk Grove Village where the proportion of commercial traffic exceeds that of any other arterial in the northwest corridor. Other arterials with a moderate level of commercial traffic include Mannheim south of I-90, and portions of Higgins Road, particularly north and east of O'Hare Airport. Commercial vehicles account for less than 5 percent of total volume along other major arterials in the northwest corridor.

Table 9-16: Percent Commercial Traffic

Locations of Expressways	% of total Traffic	Locations of Arterials	% of Total Traffic
Heavy			
I-90 at Elgin (Just West of NW Corridor)	15%	Busse Rd (South of Higgins)	15%
Moderate/Heavy			
I-294 @ Irving Park Road	9%	Irving Park (W. of IL 59)	7%
I-294 @ Touhy Avenue	8%	Mannheim (South of I-90 to Irving Park)	6%
I-290/IL 53 (I-90 to Irving Park)	8%	Higgins Rd(IL 59 to Golf Road)	6%
I-90 @ Devon Avenue	7%	Higgins Rd (Busse Road to Harlem)	7-10%
Light/Moderate			
I-90 @ River Road	5%	Elmhurst Rd (N. of Higgins)	4-5%
IL 53 (North of I-90)	4-5%	Mannheim (North of I-90)	4-5%
I-190 (I-90 to O'Hare)	3-4%	Irving Park (IL 59 to Barrington Rd)	4%
I-90 (90/94 Split to I-190)	3%	Higgins Road (Golf Rd to Busse Rd)	4%
		Golf Road (E. of Barrington)	3-5%

Data Source: IDOT, CATS, and Illinois State Toll Highway Authority

9.5 Summary

There are four travel submarkets that complete the picture of travel in the northwest corridor: work trips, O'Hare Airport trips, through trips, and commercial vehicle trips.

The work trip submarket is a critical part of the total travel market in the corridor. According to the 1990 U.S. Census Transportation Planning Package, the corridor's high concentration of employment results in the net importing of more than 120,000 workers into the corridor. Many of these workers come from the city of Chicago and north suburban Cook County. These locations serve both as sources for workers in the corridor as well as destinations for persons living in the northwest corridor. NIPC projections calling for a more rapid increase in employment than population will likely lead to the number of net imported workers increasing to more than 170,000 by 2020. This large number of workers traveling to the corridor may contribute to higher travel times. Workers traveling to the corridor are likely to experience longer travel times than the regional average (37 minutes vs. 29 minutes).

1990 census data also shows that travel patterns and mode choice for work trips vary substantially by subarea. The eastern subarea has a strong connection to the city of Chicago and north suburban Cook County. It also has the highest transit share within the corridor at 10 percent of work trips entering and leaving the subarea. The central subarea shows a strong connection to north suburban Cook County, DuPage County, and the city of Chicago. Within this subarea, the transit share is just 6 percent of those traveling from the subarea and 2 percent of those traveling to the subarea. The western subarea has the strongest connection to the central subarea, north suburban Cook County, Kane County, and DuPage County. Within this subarea, transit carries just 4 percent of those leaving the subarea and 1 percent of those

traveling to the subarea. Metra carries most of the transit users from corridor while CTA rail and Pace bus services carry most transit users to the corridor.

Despite a relatively low market share in the corridor, transit carries a significant portion of work trips to and from select locations. Transit consistently carries more than 50 percent of work trips originating in each of the corridor's subareas to the Chicago CBD. This destination accounts for the vast majority of transit trips made by those living in the corridor. Transit also carries a relatively high proportion of work trips made by residents of the city of Chicago to locations within the corridor. This is particularly true for those headed to the eastern subarea, where the transit share is almost one-quarter of work trips made by persons living in Chicago. By contrast, the transit share is particularly low for work trips with an origin and destination within the corridor where it captures just 1 to 3 percent of the total.

Trips to and from O'Hare Airport are also an important part of travel in the corridor. Data from the 1989 Landrum and Brown report indicates that, in total, more than 120,000 trips enter or exit O'Hare Airport on a daily basis. Approximately 17 percent, or more than 20,000 of these trips have an origin or destination in the corridor. Almost two-thirds of these trips are related to airline travelers, while employees serve as the source of the remainder. The auto mode accounts for the vast majority of access trips to O'Hare with the exception of airport employees, 18 percent of whom use CTA rail. Auto access routes to O'Hare show a clear orientation toward east-west routes. And finally, the evening peak traffic at O'Hare, both east and west bound on I-190, is pronounced and lasts for more than five hours – a fact that contributes to congestion.

Through trips and commercial trips are also an important part of the corridor's travel patterns. Estimates from the 1990 CATS HHTS indicate that, in total, through trips account for 2 to 5 percent of corridor trips, with the higher proportion in the western subarea. Data on commercial traffic, gathered from ISTHA, IDOT and CATS, show that commercial vehicles account for a relatively small (3 to 15 percent) portion of total traffic. Again, in the western subarea, this portion is higher due, in large part, to lower automobile traffic volumes.

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